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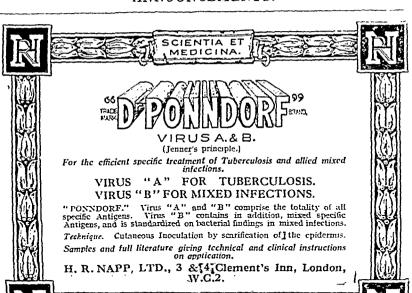
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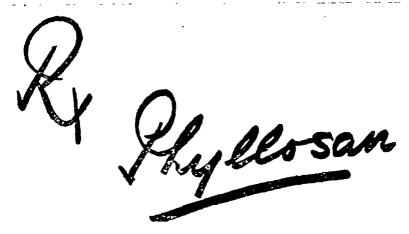
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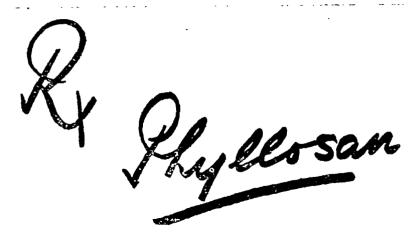
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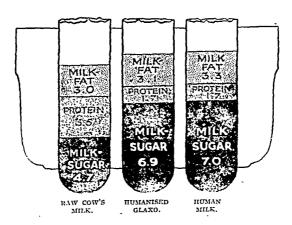
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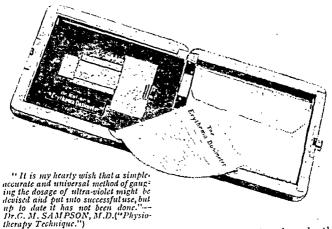
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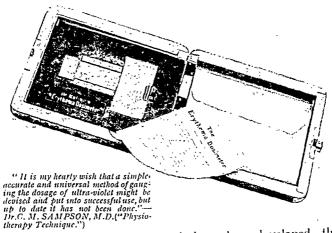


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Hyperpepsia—Intermittent hyperchlorhydria. Hypopepsia and apepsia—Dyspepsia arising from disturbance of neuro-motility. Intermittent pyloric stenosis, not of organic

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HE bowels should be thoroughly emptied without delay. Colonic irrigations are called for, but at the same time an effort should be made to stimulate the over-distended and inert bowels and produce an onward movement with evacuation of their contents.

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in BRONCHITIS, WHOOPING-COUGH, MEASLES, AND SCARLET FEVER.



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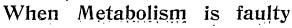


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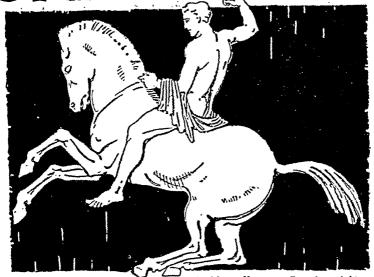
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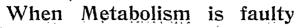
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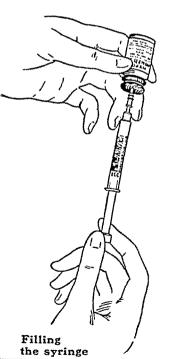
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THE FRACTITIONER

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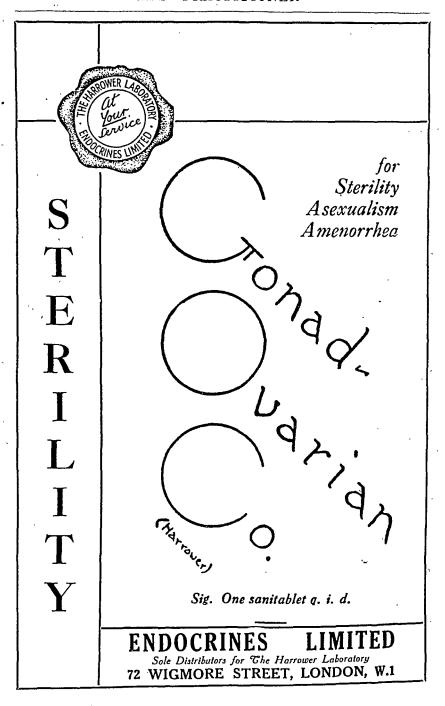
Pregnancy and Tuberculosis: with Remarks upon Artificial Pneumothorax.

BY SIR THOMAS OLIVER, M.D., F.R.C.P., F.R.S.E.

Professor of Medicine, University of Durham and College of Medicine, Newcastle-upon-Tyne; Consulting Physician, Princess Mary Maternity Hospital; Consulting Physician, Royal Victoria Infirmary, Newcastle-upon-Tyne, etc.

HETHER women who are the subjects of pulmonary tuberculosis are, or are not, more liable to become pregnant, is a matter which for the moment need not detain us. We are concerned rather with the fact of pregnancy having supervened in a patient whose lungs are the seat of tuberculous disease. Viewed from any standpoint, tuberculosis is an undesirable complication of pregnancy, for it removes the patient from the category of normal utero-gestation and places her under the dual control of physician and obstetrician. Unless miscarriage takes place, and this occurs in only a small percentage of the cases, the final treatment of the patient will be carried out by the obstetrician, wao must be ready when the appropriate moment arrives during labour to render

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uterus with the adnexa, or sterilization should be adopted, either by section of the tubes or subsequent application of the X-rays. Such a heroic line of treatment did not receive general assent. Since I have seen both lines of treatment, interference and abstention, adopted, it may not be out of place if I review the subject generally before proceeding to other details.

Pregnancy and tuberculosis may be considered from three points of view, namely, (I) the influence of gestation upon the tuberculous process; (2) the influence of the pulmonary disease upon the pregnancy; and (3) the future of the infant. There are few instances on record of a tuberculous pregnant woman dying during the process of parturition. Pinard on examining the Statistics of the Baudelocque Clinic found that out of 71,225 confinements, only twenty-six tuberculous women had died in the puerperium. We are familiar with the circumstance that while the incidence of pregnancy appears to activate tuberculous processes in the lungs of some women, in others the disease remains stationary, while in other instances again the patient improves. The latter event was so noticeable in the wife of a medical friend that he always declared, when his wife, who was tuberculous, was pregnant, that she had excellent health, gained in weight, and that the condition of the lung became quiescent. the time I speak of, the patient had already a large family, and the husband's anxiety was not so much in regard to the increasing burden of maintenance he was undertaking, but as to what would happen to his wife when she reached the climacteric. The experience just related is not unique. I have seen other instances. At the Tuberculosis Congress in Rome it was stated by Bar that 60 to 70 per cent. of women with mild pulmonary tuberculosis improved in health during pregnancy. The larger percentage of pregnant tuberculous women go to term, and the child born is usually healthy. In the

æR

such assistance as will shorten the second reduce to a minimum the harmful inf and stage, and periods of prolonged muscular contract Juences of the exhaustion consequent thereupon. tions, and the produced and pushed to the lowest limit eral anæsthesia. also the application of the forceps w t of requirement. fully dilated and the presentation is nor hen the cervix is many tuberculous women safely through mal. have carried trying events of their lives. It was h one of the most parturition in the case of a tubercul the opinion that frequently followed shortly afterward lous woman is so any rate by an aggravation of the pi s by death, or at that led some physicians to recomme ilmonary disease. pregnancy by emptying the womb in ad interruption of of utero-gestation so as to save the lift the early months mother. fe of the expectant.

A choice of two lines of treatm before the profession: (1) cessaticfient is thus placed and (2) non-interference, on the grin of the pregnancy, not only does not aggravate the pyound that pregnancy fresh complications exempted, thulmonary disease, but, patient benefits temporarily by at the physique of the and the increased bodily metalthe improved appetite suring circumstance that the inlolism; also the reasculous woman is in the larger plant born to a tuberas healthy, well developed, and forcentage of cases just average infant born to wor weighs as much as the apparently free from disease. hen whose lungs are The importance of the subjec

time and again and formed has attracted attention addresses at various medical cq the theme of many subject of debate at the Corngresses. It became the Rome, also of the German agress of Tuberculosis in The opinion expresse(ynæcological Congress in was that, if the disease in the, at the German Congress abortion in the early month lung is active, induction of later months of pregnancy is called for, while in the

PREGNANCY AND TUBERCULOSIS

It is the treatment of the pregnant tuberculous woman which calls for consideration. The physician and obstetrician may withhold their hands and do little or nothing; the pregnancy may be allowed to proceed to term and a healthy-looking child be born, or abortion may be induced in the early months, the fœtus being sacrificed so as to give the mother a chance. Within the last few years I have seen several pregnant tuberculous women in whom artificial pneumothorax had been induced and where the obstetrical consultant had advocated emptying of the uterus. It was his belief that as pregnancy advanced the patient's health would become worse. Abortion was accordingly induced, and the patients made a good recovery from the operation. In one case in particular the pulmonary signs improved; inert gas was at intervals passed into the pleural cavity to maintain pressure, and the patient was able to take her place and play her part in her home as formerly. Becoming pregnant again, the patient for some reason or other was allowed to drift on. She went to term and was delivered of a healthy child who. I believe, is alive and well to-day. The mother's health was never quite so well after the second confinement, although she lived for more than a year afterwards. This is one of those cases in which it was felt by the medical attendants that abstention from interference, if not a mistake, had certainly not been followed by satisfactory results. The induction of abortion in the first pregnancy was successful; non-interference in the succeeding pregnancy was followed in due course by an aggravation of the symptoms.

Dr. Andrew Trimble, of Belfast, who has had considerable experience of tuberculosis, states that the average life of tuberculous females from the date at which the first signs of the disease are recognized to that at which death occurs, is 32.9 months. Pregnancy per se in the patient to whom I have alluded could hardly, therefore, be said to have accelerated the fatal

Princess Mary Maternity Hospital, Newcastle, the infants of tuberculous mothers have at birth weighed from 8 to 9 lbs. The transmission of tubercle bacilli through the placenta to the infant is rare. Jean Colombet, a French physician, was, however, of the opinion that in pregnancy the resistance of the maternal organism to the tubercle bacillus is reduced, and that the disease is apt to become aggravated especially at the time of labour, and during the puerperium. Such divided opinions as I have given clearly indicate the absence of uniformity of experience.

There is one problem concerning the infant in utero which has not been much dealt with. It is known that patients who are the subjects of mild uncomplicated tuberculosis produce antibodies which help towards the cure of the disease, also that when the case is one of implication of the glands some protective influence is usually left behind. May, therefore, the unborn infant of a tuberculous woman not be protected by the maternal anti-toxins which pass through the placenta, so that instead of becoming more liable to the disease, he acquires a degree of immunity to it? The instances in which tubercle bacilli pass the rough the placental barrier, circulate in the feetal blockd and are ultimately found in the infant's organs are, as already stated, extremely few. That micro-organisms can escape through the placenta and infect the infant is known. It occurred in the case of the distinguished French obstetrician Mauriceau, who was born with the marks of smallpox upon his body, his mother having caught the disease in the later months of piregnancy.

The infant born to a tuberc' lous woman, and who shows signs of the disease a few weeks or months after birth, is less likely to have caught the bacillary infection in utero than to be the subject off post-natal infection due to the mother having been allowed to suckle him amid

unhygienic surroundings.

PREGNANCY AND TUBERCULOSIS

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termination. Some of my readers probably know the aphorism attributed to Dubois, namely, that a woman with pulmonary tuberculosis may bear the first accouchement well, the second with difficulty, and the third never. Experience does not entirely confirm Dubois' statement. I have seen several tuberculous pregnant women treated at Walkerville Tuberculosis Hospital by Dr. W. H. Dickinson and Dr. Geo. Hurrell by means of artificial pneumothorax, and, later on in the maternity hospital, I have examined them before and after their confinement.

One of these was a woman, aged 39, in her fifth pregnancy, who in August last was daily expecting her confinement. She had her first artificial pneumothorax induced in January, 1924, and had been in a sanatorium until June of that year. On examining her on August 4 of this year there was nothing of obstetrical importance to allude to. Her heart and kidneys were healthy. Over the apex of the left lung posteriorly the breath sounds were coarser than usual and the expiratory murmur prolonged; over the left midscapular area, large moist crepitations could be heard; the right lung was remarkably free from adventitious sounds. She had had no air passed into her pleural cavity for three months. Three days after my examination she gave birth to a female infant who weighed 93 lbs. She had been in labour from 7 a.m. till 7 p.m.; towards the latter part of the second stage she had slight dyspnæa and frequent cough. A general anæsthetic was administered and the forceps applied. She was rather collapsed after the delivery and was given twice a saline injection per rectum. On the following day I found her with a pulse rate of 110 and temperature 98° F. She was quite comfortable. For the next three days the temperature varied from 99° to 100° She made a good recovery, and left the hospital at the usual date feeling remarkably well and without any aggravation of the lung condition.

We were quite contented after the confinement to leave well alone for the time being, but M. P. Courmet² goes a step further. He relates the following case:—

A young woman showed signs of pulmonary tuberculosis in July, 1923; in November, 1923, artificial pneumothorax was induced. In May, 1924, she was found to be pregnant, and artificial pneumothorax was again induced. Pregnancy was thereafter allowed to proceed. In December, 1924, she passed through her confinement satisfactorily. The infant, who was healthy, weighed a little over 4 lbs. Mother and infant did well, but Courmet insisted in injecting into the pleural cavity immediately after the confinement a fairly large quantity of nitrogen in order to avoid the

PREGNANCY AND TUBERCULOSIS

decompression likely to occur in the lung which had been previously submitted to pneumothorax.

In tuberculous as in non-tuberculous women the induction of abortion or of premature labour is more or less a shock to the patient, since Nature is not prepared for the event. By allowing pregnancy to proceed, shock at any rate is avoided.

There will always be a certain percentage of pregnant tuberculous women who will miscarry. Of 1,624 expectant tuberculous mothers Trimble found that 8.6 per cent. miscarried, 88.7 per cent. were delivered of a living child at full term, and 2.7 per cent. of a still-born child at full term.

At the Institute of Clinical Research, St. Andrews, Dr. J. Hunter Paton, taking the experience of the Child Welfare Centre, found, as regards the birth-rate of the population generally, 95.6 per cent. full term livebirths, 4 per cent. of miscarriages, and 0.3 per cent. stillbirths. The contrast between the number of children born alive to tuberculous women in Belfast and those born to women in a healthy district like St. Andrews, is interesting. In Belfast there is a large exploitation of women's labour in the factories, the incidence of tuberculosis in females is high, the women are on their feet in the mills for the greater part of the working day, and probably syphilis is sufficiently prevalent to be a cause of miscarriage. Yet the statistics compare not so very unfavourably with those observed in other industrial centres where women's labour is not so much called for. Dr. Trimble's figures of 88.7 per cent. of tuberculous women giving birth at full term to living children, 8.6 miscarriages, and 2.7 per cent. of still-births, clearly indicate that by allowing tuberculous women when pregnant to proceed to term the results compare favourably with the data supplied by the total birthrates of other industrial centres, nor can it be said that there is evidence of serious harmful effects caused by

termination. Some of my readers probably know the aphorism attributed to Dubois, namely, that a woman with pulmonary tuberculosis may bear the first accouchement well, the second with difficulty, and the third never. Experience does not entirely confirm Dubois' statement. I have seen several tuberculous pregnant women treated at Walkerville Tuberculosis Hospital by Dr. W. H. Dickinson and Dr. Geo. Hurrell by means of artificial pneumothorax, and, later on in the maternity hospital, I have examined them before and after their confinement.

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PREGNANCY AND TUBERCULOSIS

emboli in the blood could hardly have been so rapidly removed or dispersed by the artificial respiration. Olner and Turries,3 of Marseilles, dealing with the nervous accidents which may arise during the induction of artificial pneumothorax, are of the opinion that the accidents have usually arisen at the moment of the pleural puncture before any gas is injected. They maintain that the accidents are the result of irritation of an inflamed pleura, that this is likely to occur if the puncture is made in the neighbourhood of recent adhesions, and that they might be prevented by local anæsthesia such as could be obtained by the use of cocaine. One other theory seeks to explain the seque. by a disturbance of the vaso-motor regulation of the meningeal blood-vessels, and in support of this view allusion is made, although I do not quite understand the connection, to the fleeting bilateral erythema which occasionally develops after the operation.

Certain local conditions may follow puncture of the pleural cavity: there may be an effusion of serum, adhesions may form, or there may be pus. Fortunately septic pleurisy is rare. The question has been raised as to whether when a serous effusion follows puncture the fluid should be removed, but unless there are urgent symptoms it is better to leave the fluid alone, since it acts as a gentle compressing agent. At any rate, in some instances where it has been removed the temperature has risen and the patient has become worse. In other cases, when the fluid has been removed, it has reappeared.

Bernard and Barron 4 found that in 2 per cent. of the cases treated there occurred a purulent effusion, and, as in the pus, pneumococci, streptococci and anærobic germs were found; the cause of the sepsis was probably perforation of the lung substance, with escape into the pleural cavity.

As a matter of practice it may be said that the

pregnancy upon the tuberculous women, since 31.5 per cent. of the patients are stated to have improved after delivery, 20 per cent. became worse, and 4.9 per cent. died within a year of their confinement. I have chosen the statistics of Belfast owing to the large number of women employed in the linen mills, among whom there is a considerable amount of pulmonary tuberculosis, and in whom, therefore, pregnancy would be more likely to aggravate than lessen the pulmonary lesions and depress the general bodily conditions. Notwithstanding what has just been stated, it is safer for tuberculous married women not to become pregnant, and for tuberculous girls not to run the risks of marriage and its consequences.

It is not my intention to deal with the technique of artificial pneumothorax. The excellent articles in the medical journals by Dr. Claude Lillingston and others are within the reach of all. Only once have I seen serious symptoms arise during the operation:

This was in a male patient upon whom Dr. Fred. C. Coley, one of our local physicians who has made a special study of the subject, after having made a refill of the pleural cavity had removed the needle from the chest wall. Shortly afterwards the patient complained that he was becoming numb on the right side of the body. Dr. Coley left the room to fetch liq. strychniæ when I noticed, after a few convulsive tremors, that the breathing had practically ceased and the face had become extremely pale. Along with Dr. Norman Bennett, who was present, we at once resorted to artificial respiration: by degrees normal respiration became re-established, the heart's beat could again be felt, and in a little over half an hour the patient seemed to be all right again.

What was the cause of the alarming condition we had treated? Some physicians who have had similar experience have attributed the occurrence to a pleural reflex caused by irritation by the point of the needle, others have regarded it as the result of the lung having been punctured and air having been injected into a small pulmonary vein. The premonitory symptom of numbness of the right side of the body confirms the latter opinion, although it must be admitted that air

PREGNANCY AND TUBERCULOSIS

compressed there were areas of atelectasis, and in these it was found that the lung tissue had reverted to the fœtal type; the epithelium had become cubical without any signs of sclerosis of lung tissue. other hand, around neighbouring tuberculous or pneumonic patches there was distinct fibrosis. This, too, was the experience of Roubier,6 who found in six cases treated by artificial pneumothorax, where death had supervened from six to fifteen months after the operation, marked fibrosis of the pulmonary tissue surrounding old caseous masses. He did not find that the cavities became cicatrized by an approach of their walls. Cavities were observed which contained pus or caseating material, and while some tuberculous masses had become transformed into calcareous substance. there were indications of fresh foci of disease having developed both in the compressed lung and in that which previously to the operation had not shown signs of disease

Pneumothorax has, therefore, in many instances arrested the disease by inducing a fibrosis, whereby extension of micro-organisms to the healthy lung had been considerably prevented. Pneumothorax gives functional rest: the bronchi remain patent, and the air within them stagnant. While the operation brings about quiescence and prevents ready extension of the disease, circumstances may occasionally arise whereby there is a lighting-up again of the malady, tubercle bacilli are liberated, and fresh infection takes place. Even with this possibility, where pneumothorax has been induced several years of useful life have been vouchsafed to many patients.

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operation is not performed upon patients whose lungs are not seriously damaged by tuberculous disease. Cavitation is usually present; the object sought to be attained is compression of the diseased portions of the lung.

Since treatment by the induction of artificial pneumothorax has been carried out for several years, the question might well be asked, to what extent has it been curative of the disease for which it has been adopted? When the patches in diseased lungs have become softened and cavities have formed, the prospects of a patient living are not reassuring. Many operated upon have died within a year or two, but, on the other hand, it is the experience of Lillingston. Coley, and others, that patients whose prospects of. life were only a few months, or at the most a year or two, are alive to-day, twelve years or more after having submitted to the operation, and although we cannot speak of such results as a cure, the disease has been either arrested or has become quiescent, so that the patients are able to carry on in comfort and discharge their ordinary duties. This is as much as we can expect. The drawback to the treatment is that it has to be repeated time and again.

Rolland ⁵ draws attention to the pathological changes found in lungs which have been compressed in artificial pneumothorax. During life radiograms indicate the march of events. Rolland examined the lungs of twenty-five patients upon whom the operation had been performed: eighteen of the patients died during the first year, fourteen of these within the first six months. Death in most instances was due to the pulmonary disease having become bilateral. In six of the cases death was attributed to perforation of the compressed lung. The lungs which had been compressed the longest supplied the most valuable information. In the healthy portions of the lungs which had been

other public institutions are all important and easily preventable causes.

I do not propose to consider further these factors, but to discuss some of the cases which are brought to the surgeon on account of symptoms of intractable constipation, and to attempt to describe some of the pathological lesions which I, or others, have met with in operating for this condition.

I am not one of those who believe that in the removal of the colon, or its exclusion by short-circuiting from the main alimentary tract, we have discovered a cure for most of the chronic infections of the present day; but each year one sees a certain number of patients suffering from constipation of so severe a type that they are quite unable to get rid of the by-products of digestion in any satisfactory manner, and have to take poisonous doses of aperients, or to use repeated enemata to keep themselves even in poor health. I have seen patients in whom an action of the bowels was produced only after heroic measures, and in whom it had become a serious and painful affair which was to be dreaded. It cannot be doubted that in such cases the stage has been reached when almost any operation is justifiable which affords a reasonable hope of curing the patient. It goes without saying that it is only the more serious cases that ever reach the surgeon, and that they have previously had all the recognized, and sometimes unrecognized, methods of treatment before the surgeon sees them.

I may here, perhaps, quote two cases which came under my personal observation, as showing what extreme degrees of constipation are met with in this class of case:—

The first was a young woman of forty who was sent to me by her doctor, who stated that he was in despair, and could think of no method of treatment which had not already been tried without success. The dose of medicine which she took daily consisted of 5 grs. of aloes, $3\frac{1}{2}$ grs. of calomel, and 9 grs. of jalap. This would,

The Surgical Treatment of Constipation.

By P. LOCKHART-MUMMERY, F.R.C.S.

Senior Surgeon to St. Mark's Hospital for Diseases of the Rectum Consulting Surgeon, Queen's Hospital for Children, Hackney; Hon. Surgeon, King Edward VII Hospital for Officers, etc.

HRONIC constipation, like many other complaints of the present day, is one of the results of advanced civilization; among native races and wild animals it is practically unknown, though it is only too common in civilized communities, and, indeed, forms one of the commonest disorders of our Modern methods of dietary and the great cities. sedentary character of our daily life are largely responsible for the tendency to constipation which is so prevalent. It is one of the penalties we pay for the comparatively small use we make of our large intestine. I think, perhaps, in recent years more ills have been attributed to chronic constipation than is quite justifiable, but if its evils have been sometimes exaggerated, it must be admitted that any factor which tends to interfere persistently with the complicated machinery of human metabolism cannot fail to be of paramount importance, for good health requires that every portion of our machinery should be working smoothly, and if the elimination of the waste products of digestion is imperfect or irregular, it is impossible to keep the body in perfect health.

Much of the constipation of our present population is probably preventable. Bad habits contracted in childhood have had much to do with it, lack of proper supervision, both at home and at school, improper and inadequate lavatory accommodation in schools and

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sigmoidoscope after the bowels have been well emptied will often give valuable information. This should not require any anæsthetic, and is not painful. It is obvious, however, that the sigmoidoscope cannot tell us much except where the cause of the condition is in the rectum or the lower part of the pelvic colon. It is none the less exceedingly important to be able to eliminate this particular portion of the alimentary tract before proceeding to investigate the remainder of the large gut. Abnormal conditions of the rectum itself, or of the anus, adhesions involving the pelvic colon, strictures and diverticulitis can frequently be diagnosed by sigmoidoscopy.

X-rays.—One of the most valuable methods of diagnosing lesions in the colon is by means of proper examination by X-rays. Unfortunately there are a great many fallacies in this class of X-ray diagnosis, and the whole subject is far from being accurately worked out.

Among the more important of these fallacies is the diagnosis of the exact point at which the delay occurs when the patient is being examined after a bismuth meal. It does not at all follow, for instance, that delay in the cæcum, even when prolonged, is due to any lesion at that point or immediately in front of it. If one could be sure that the whole of the colon is empty, which is seldom the case, there might be some reason for supposing that the delay is caused by a lesion at the point at which it appears. Frequently, however, delay may occur at the eæcum when the real cause of the trouble is some lesion in the pelvic colon.

The same applies to the filling defect seen after a barium enema. Filling defects may easily be simulated by spasm, which is not due to any actual lesion. The fact that the fluid is being introduced in the wrong direction may set up spasm.

The mobility and position of the colon when under observation with X-rays is also open to fallacy owing

I think, be a most dangerous dose to give to any ordinary person, but it failed to give her relief often for days at a time.

The other case was that of a lady aged forty-four who was quite unable to get her bowels moved with an aperient, and had to have a nurse to give her enemata three times a week. It often took the whole day, and required as many as five or six enemas of various kinds before any result was obtained, and she was never at any time comfortable or free from distress.

Both these patients were cured by operation, and both are well at the present time, several years since they were operated upon.

The causes of severe constipation of surgical interest (omitting cancer) may be classified as follows:—

- 1. Congenital Causes.—Mega-colon or Hirschsprung's disease; floating cœcum; absence of some part of the colon; congenital stricture; congenital adhesions (Jackson's membranes, Lane's kink, adhesions of the pelvic mesentery).
- 2. Acquired adhesions due to peritonitis, or following previous operations.
- 3. Conditions in the rectum or anus.—Hypertrophied sphincter; hypertrophied Houston's valves; stricture.
 - 4. Atony of the colon and visceroptosis.
 - 5. Diverticulitis.
 - 6. Hyperplastic tubercle.

First of all we have to consider the very important question of diagnosis. The success, or otherwise, of treatment in relation to cases of severe chronic constipation depends very largely upon accurate diagnosis of the cause of the condition, and diagnosis of the conditions affecting the large bowel is difficult on account of our very limited means of ascertaining exactly what is occurring in this part of the alimentary tract. A certain amount of guidance can be obtained from a careful investigation of the symptoms, but it is seldom that anything like an accurate diagnosis can be made in this way.

Sigmoidoscopy.—A careful examination with the

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after a barium enema rather than after a bismuth meal. I would, however, stress the necessity of not relying upon a single examination, but on the study of two or three examinations on different occasions.

Another important factor in X-ray diagnosis of the colon is to note the mobility of the various parts of the colon when filled with barium.

Exploratory Laparotomy.—Lastly, as a means of diagnosis, we have exploratory laparotomy. Surgeons naturally dislike having to suggest exploratory laparotomy for diagnostic purposes, as it is in itself a confession of failure. On the other hand, there are many cases in which anything like an accurate diagnosis cannot be made without actually examining the colon, and in view of the great importance of being able to deal surgically with many of these cases I have no hesitation in saying that this method should be used when the case cannot be otherwise diagnosed. often happens that at an exploratory laparotomy some band is found that can be easily removed and so give the patient complete relief. I have on several occasions seen such a condition that nothing short of actually examining it would have enabled a correct diagnosis to be made.

I shall now discuss briefly the individual causes as set out in my table above :—

1. CONGENITAL CAUSES.

Mega-colon may give rise to the most extreme degree of constipation. One patient of mine has, on two occasions, gone three months without having any action of the bowel at all. The condition is not difficult to diagnose, as it can be detected either by the sigmoidoscope or by X-rays with comparative ease. It is, however, much more difficult to deal with. In a few cases successful results have been obtained by resection of the affected portion; in the majority of cases,

to the weight of the material in the colon as compared with that which is normally present.

Many of these fallacies can be overcome to some extent by repeated examinations, the fact that the same appearance occurs at the same spot in repeated examinations being a strong argument in favour of a lesion in that situation. Unfortunately, however, patients are not always willing to subject themselves to repeated examinations, more particularly in view of the fact that it involves considerable expense.

In some cases it is very important, if possible, to be able to diagnose whether there is, or is not, degeneration of the muscular tissue in the walls of the colon. Obviously, if all the muscular tissue in the walls of the colon has disappeared, there is little hope of being able to do much good by anything short of colectomy, or some form of short circuit, but we must be sure that we are really dealing with a case of atony and degeneration of the colon, and not with a condition which is capable of recovery. The best way of doing this is to examine the patient with a barium enema, and while the barium is in the colon to give an injection of pituitary extract hypodermically. This will almost certainly cause muscular contractions of the wall of the colon in a very few minutes, and typical haustration will be visible. If the administration of pituitary extract fails to show any contraction of the colon, especially after repeated examinations, this should be very good evidence that the muscular tone of the colon has seriously degenerated. It may not always be necessary to administer pituitary extract, as, if the colon is watched for some time, or kneaded through the abdominal wall, contractions can often be excited; but before admitting any colon as degenerated I think it is a good plan to test it in this way.

There is no doubt that the best results are obtained, and with the least trouble, by examining the colon

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pelvic colon one sometimes finds that at about its centre it is caught tightly down into the left iliac fossa. If the colon is drawn upwards towards the middle line it will be seen that there is an irregular whitish line on the outer side of the mesocolon about an inch away from the bowel. If the peritoneum is divided carefully with a knife along this white line it will be found to fold back very much like the leaf of a book, and instead of one finding a raw surface exposed where the adhesions have been divided a clean glistening surface of peritoneum will be seen. One would expect after dividing the outer surface of the mesocolon to find that the fat and cellular tissue between the layers of the mesentery were exposed, but what one does find is that a cavity lined with peritoneum has been opened. I feel convinced that this condition must be due to some congenital defect in the development of the pelvic mesocolon. All that is necessary to relieve the condition is a careful division along the line where the outer layer of the peritoneum is stuck to the mesocolon proper; this is fairly easily distinguishable by the white line. When this line of adhesion has been divided the mesocolon will elongate considerably and allow the pelvic colon to take up its normal position, no raw area being left. I have repeatedly seen this condition, and while it does not always give rise to serious symptoms it sometimes causes quite severe constipation and I have often proved that the constipation is entirely relieved after the colon has been released. I have noticed that sometimes when operating on cases of cancer of the rectum one finds this condition of the pelvic mesocolon present, though whether it has any causal relationship I am not prepared to say.

2. ACQUIRED ADHESIONS.

We still understand very little with regard to how adhesions form in the peritoneal cavity. We know that

however, very little can be done to remedy the condition. Regular irrigation of the colon combined with sedatives such as belladonna will often enable the patient to carry on quite satisfactorily, provided he is careful not to allow material to accumulate in the distended bowel.

Floating Cocum.—A good deal of attention has been paid to this form of chronic constipation in recent years. Before attempting to deal with the condition it is exceedingly important to know whether the excum is unduly mobile, or whether its muscular walls are degenerated to a degree which makes recovery of the muscular tone improbable. As I have already nointed out, this should be ascertainable by X-rays. muscular tone is not seriously impaired fixation of the colon will often give good results, but in cases where there is marked degeneration of the musculature the method suggested by my colleague, Mr. Norbury (Proc. Royal Soc. Med., February, 1925), of complete resection of the cæcum gives very much the best results. This operation should not be a particularly dangerous one, and the results are good. It is probably advisable, where possible, to maintain the integrity of the ileocæcal valve, as there appears to be danger of ascending infection passing up the ileum when the valve is removed, though of course this does not apply when the valve is itself degenerated. The exact nature of the operation must depend upon the condition found, but it generally consists in implanting the terminal end of the ileum into the hepatic end of the transverse colon, and complete removal of the degenerated cæcum and ascending colon. It is a curious fact that in some of these degenerated cæca the mucous membrane is deeply pigmented. The pigment is a substance closely related to melanin.

Congenital Adhesions.—There is one form of congenital adhesion of the pelvic colon which I believe to be of considerable importance. On examining the

pelvic colon one sometimes finds that at about its centre it is caught tightly down into the left iliac fossa. If the colon is drawn upwards towards the middle line it will be seen that there is an irregular whitish line on the outer side of the mesocolon about an inch away from the bowel. If the peritoneum is divided carefully with a knife along this white line it will be found to fold back very much like the leaf of a book, and instead of one finding a raw surface exposed where the adhesions have been divided a clean glistening surface of peritoneum will be seen. One would expect after dividing the outer surface of the mesocolon to find that the fat and cellular tissue between the layers of the mesentery were exposed, but what one does find is that a cavity lined with peritoneum has been opened. I feel convinced that this condition must be due to some congenital defect in the development of the pelvic mesocolon. All that is necessary to relieve the condition is a careful division along the line where the outer layer of the peritoneum is stuck to the mesocolon proper; this is fairly easily distinguishable by the white line. When this line of adhesion has been divided the mesocolon will elongate considerably and allow the pelvic colon to take up its normal position, no raw area being left. I have repeatedly seen this condition, and while it does not always give rise to serious symptoms it sometimes causes quite severe constipation and I have often proved that the constipation is entirely relieved after the colon has been released. I have noticed that sometimes when operating on cases of cancer of the rectum one finds this condition of the pelvic mesocolon present, though whether it has any causal relationship I am not prepared to sav.

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after even a severe septic peritonitis no adhesions of any kind may be found at a subsequent laparotomy; on the other hand, after what appears to be a perfectly aseptic operation upon the abdominal cavity masses of adhesions may occur, and may even recur after frequent division. We are still considerably in the dark as to why this is so, or what is the exact factor which decides whether adhesions shall form or not. A great many substances have been tried to prevent the formation of adhesions, none of them with very much success. My own belief is that a very careful toilet of the peritoneum, special care being taken to leave no raw surface nor exposed stitches nor any blood clot, is of more importance than anything else. Some of these cases where adhesions repeatedly reform are among the more desperate of surgical problems.

3. CONDITIONS IN THE RECTUM OR ANUS.

I am of opinion that, apart from congenital or acquired stricture in the rectum, lesions in this part of the alimentary tract have not very much to do with the production of chronic constipation.

Some time ago in America a good deal was written on the question of hypertrophied valves of Houston as a cause of chronic constipation, and some ingenious operations were invented for division of these valves. I have personally never seen an hypertrophied valve of Houston which could possibly have any causal relationship to constipation.

An hypertrophied anal sphincter may occasionally be the cause of constipation, but seldom, if ever, of a severe degree. The habitual use of salts for many years is very liable to result in considerable contraction of the sphincter muscle, which may subsequently interfere with proper action of the bowels. The contraction of the muscle in such cases is comparable to the contraction which would take place in the biceps if the

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arm were kept flexed for a long time. Stretching of the muscle under an anæsthetic, however, will put this right, and is a very simple procedure.

4. ATONY OF THE COLON AND VISCEROPTOSIS.

The worst cases of surgical constipation come in this class, and they are also the most difficult to deal with. Visceroptosis in itself is not necessarily a cause of constipation. Many patients with visceroptosis have a perfectly regular action of the bowels; it is when we have the associated conditions of visceroptosis and atony of the bowel wall that a really serious condition results. The exact causes of this condition are not well understood. Weakness of the abdominal wall is undoubtedly a very important cause, or factor, but, on the other hand, some of the most extreme cases of weakness of the abdominal wall, such as are found in women who have had a large number of children, are often not associated with any severe degree of constipation. In severe cases of this condition the amount of degeneration of the muscular tissue in the colon wall is quite remarkable. I have seen some of these cases in which microscopic sections taken from several different parts of the colon failed to reveal any muscular tissue whatever, the whole of the muscular coats being replaced by fibrous tissue. The colon under such circumstances becomes a mere sack, which is quite incapable of passing on its contents. At the same time poisonous substances present in the bowel contents are able to pass into the blood stream to quite an abnormal degree, no doubt due to degenerative changes occurring simultaneously in the mucous lining of the colon. As a result the patient is very easily poisoned by substances absorbed from his own colon, even when the actual period of stasis is not unduly prolonged.

This is very noticeable if one contrasts such a case

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the transverse colon is able to drain directly into the rectum, and gravity alone will tend to empty the whole colon beyond the hepatic flexure into the rectum. The operation is not one attended by any serious risk, and in the cases in which I have performed it (some five or six) the results have been admirable, the patient's bowels acting quite easily and their general health recovering. I have seen no bad effects from the operation, and the results up to date, some of which extend over as much as six or seven years, have been quite satisfactory.

(c) Resection of the Cœcum.—This method has been suggested by Mr. Norbury, and gives good results where the cœcum is the chief source of trouble and the rest of the colon is more or less normal. Unfortunately, in a great many of the cases, the transverse colon is seriously involved, and in such cases resection of the cœcum alone is not likely to be very effectual.

In all these cases of degenerative atony of the colon the greatest difficulty is to know what treatment to advise and when to advise operative interference. The onset is never acute, but always slow and insidious. At first, increasing doses of aperients and intermittent bad health are the chief features, and it is often only in the later stages that serious attention is drawn to the nature of the case. I would suggest the following points as useful in dealing with such a case.

Aperients, more especially those which act by liquefying the contents of the colon, are useless.

Exercises and massage to increase the tone of the abdominal muscles, if necessary, assisted by wearing some abdominal support, are often very useful.

The patients are nearly always thin and anæmic, and treatment to remedy these conditions will help the constipation.

The endocrine glands are always inefficient, and

with one of mega-colon, in which, although the degree of stasis is extreme, auto-intoxication does not occur. I have seen patients with mega-colon whose bowel contents have been retained for as long as three months, and yet there has been no sign of any absorption of poisons.

On the other hand, in a patient with serious degenerative atony of the colon wall, stasis for even so short a period as twenty-four hours may give rise to quite alarming symptoms.

When one is satisfied that there is practically no contraction in the wall of the colon and that degeneration of the muscular coat has already occurred, it is very unlikely that anything short of operative treatment will give the patient more than temporary relief. Three methods of procedure present themselves.

- (a) Complete Colectomy.—There is no doubt that in a really serious case, where the whole colon is degenerated, this method gives very good results. I have performed this operation in a number of cases and the results have been most satisfactory. Patients who previously had been hopeless invalids have been able to return to a normal life, and have been more than satisfied with the result of the operation. The operation is somewhat drastic, and is certainly mutilating, although as a matter of fact it is not as dangerous as it would seem.
- (b) Trans-rectal Anastomosis.—I devised this operation to relieve the condition without necessitating so serious an operation as colectomy. The principle is that the chief delay in an atonic colon occurs in the sagging and helpless transverse colon, from which, in the absence of any proper peristaltic action, there is no escape for the fæcal contents. By anastomosing the lowest portion of the transverse colon to the upper end of the rectum by a fairly large opening, the whole of

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considerable help can be given by the administration of suitable gland substance.

Regular tests of the condition of the colon should be made, preferably by X-rays, but a good substitute is to give two drachms of charcoal occasionally with breakfast and note how long it takes to appear, and how long to disappear from the fæces.

When the condition is progressive, and has definitely begun to cripple the patient, operative treatment should be advised.

5. DIVERTICULITIS.

This is one of the conditions that one should suspect in chronic constipation in a person over fifty years of age. The diagnosis is comparatively easy if the patient is X-rayed after a barium enema, and again twelve hours after the enema has been evacuated. The diverticulæ will be seen quite distinctly, and I know no other appearance which resembles it. Many of these patients carry on for a very long time without any surgical interference if they take care to keep the contents of the colon liquid. Liquid contents do not seem to set up trouble in the diverticulæ, and it is only when the contents become solid that the typical inflammatory symptoms occur.

6. HYPERPLASTIC TUBERCLE.

This is a very rare condition, but one which should be borne in mind, as it gives rise to curious symptoms with chronic obstruction, and often pain. The symptoms and appearances under the X-rays suggest a cancerous stricture, and the condition can only be guessed at apart from operation. The results of resection of the affected portion of colon, which is seldom more than a few inches, are admirable, and the condition is not usually associated with active tubercle in other parts of the body.

The Value of Scopolamine-Morphine Narcosis in Labour.

By G. W. THEOBALD, M.D., M.R.C.P., F.R.C.S.

Obstetric Tutor in the University of Leeds; Resident Medical Officer,
Leeds Maternity Hospital; late Assistant Master, the Rotunda

Hospital, Dublin.

FFORTS to relieve the pains of women travailing in childbirth are not, as many imagine, a fad of the twentieth century. From remote antiquity accounts come down to us of various potions given to women in labour, while even the god, Apollo, is said to have been born while Latona, his mother, was under hypnotic influence.

It is neither the purpose of this paper to trace the history of anæsthesia or narcosis in labour, nor to meet the objections of those who oppose it on ethical grounds, or the arguments of others who are convinced that if the mother is spared the pain then the child will be spared the love. I merely wish to give an account of the treatment as it was carried out in a number of cases, and to record the results obtained.

There are many refined, sensitive women who recoil from the idea of childbirth, for they fear the physical pain, and shrink from the necessary exposure and loss of decorum, which reduces them, in their own estimation, to the level of the beasts of the field. It seems to me that there is no more reason to refuse to alleviate this mental and physical suffering than there is to refuse anæsthesia for an abdominal operation, or for the extraction of a tooth, providing no risk is incurred either to the mother or the child.

In the series of cases here summed up, treatment was

not started until the external os uteri was one quarter dilated. Failure in the past has in many cases been due to the fact that the narcosis was started too early, and not infrequently before the onset of true labour.

The amount of scopolamine given was materially less than that usually advocated, and the total amount given in not a few cases did not exceed gr. 1/50, an amount which is occasionally given as a single dose. This is probably the reason why no untoward symptoms were noted in either the mothers or their children.

The observations as to the number of "pains" that occurred from the commencement of the treatment to the delivery, were very interesting and instructive. It is now possible to give students and nurses a definite conception of the meaning of contraction and retraction. It is a far more definite thing to teach that the uterus has a definite piece of work to do in order to expel the child, and that this piece of work is usually accomplished in about one hundred "pains."

Dr. Gibbon Fitzgibbon, the master of the Rotunda Hospital, was good enough to give me permission to carry out investigations with scopolamine-morphine narcosis, and the following observations were made over a period of two years. With the exception of two, all the patients were primiparæ. The rule was to begin treatment when the external os uteri was one quarter dilated (four fingers).

The patients were transferred from the waiting-ward to the isolation ward. This ward was usually reserved for cases of eclampsia, etc., or cases possibly infected before admission. It was, therefore, possible to carry out the method only when the ward was vacant, and the number of cases is consequently not so large as I could have wished. The isolation ward had only one bed in it, but was extremely noisy and unsuitable for twilight sleep.

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The case was left in the care of a pupil-midwife, under the supervision of the sister on duty in the labour ward. The two routine examinations required by the Conjoint Midwives' Board, were carried out by the pupil midwife in charge of the case, but no other vaginal examination was made. Rectal examinations in some cases were made to see how the labour was proceeding.

As soon as the patient was put into this ward her ears were plugged with cotton wool, kept in place by a flannel bandage which also covered the eyes. The preliminary dose consisted practically always of morphine sulphate, gr. 1, and scopolamine hydrobromide, gr. 1/150. The morphia was repeated only in one case, when gr. i more was given. At first the succeeding doses of scopolamine were not given until I had carried out the amnesia test. I allowed the patient to feel three common objects, such as a penny, a fountain pen, or a button. After about a quarter of an hour I returned and asked her what she had handled. If her memory was clear an injection of scopolamine, gr. 1/450, was ordered. This system worked very well, but it was very exacting as far as the obstetrician was concerned. The ordinary work of the hospital had to be done, and not infrequently the success of the case was marred by the too long interval between my visits. I then laid down a routine that was to be carried out if I could not see the patient, and it proved much more successful than I had anticipated.

First Dose. Morphine sulphate, gr. ½.
Scopolamine hydrobromide, gr. 1/150.
Second Dose. Two hours after first dose:
Scopolamine hydrobromide, gr. 1/225.

Subsequently scopolamine hydrobromide gr. 1/450 was given every three hours; it was also given when the head was on the perinæum and delivery was expected.

Soon the amnesia test was discarded. It was found possible to judge the depth of narcosis by watching the

patient, listening to her mutterings and, if necessary, talking to her. The sisters were then allowed to give scopolamine hydrobromide gr. 1/450 two-hourly if necessary, but in no case were they to give more than gr. 1/450. It thus came about that several of the cases were treated from the beginning to the end by the sisters, and were not seen by myself.

Any increase in pulse rate or in the frequency of the respirations was to be noted, and regarded as a danger signal. Neither of these signs was noted on any occasion.

The pupil-midwife was instructed not to hold conversation with the patient, and merely to control, not prevent, movements. She kept a chart and recorded the time of every "pain" and its duration. She also recorded the details of bowel action, micturition, etc. The room was kept dimmed and as quiet as possible.

The following is a description of a typical patient while under scopolamine-morphine narcosis.

During the interval between pains.—Her face is slightly flushed, her pupils are moderately dilated, her skin is neither dry nor moist. She prefers to lie on her side and sleeps peacefully. Her respirations are deep and somewhat slower than normal. Her plantar response may be extensor, and it may be flexor. As her pain comes on her hands tend to stray in the direction of her genitals. She may mutter incoherently, and she may sit up and try to get out of bed. She calls out for the nurse and plucks at the bandage covering her eyes.

During the pain.—She cries out, behaves like an ordinary patient, and demands something to ease her pain. The pain passes away. She passes through the muttering stage. She asks for a drink of water and again falls asleep.

A few patients were particularly noisy. Except during the actual delivery, it was never difficult to control the patient. Chloral hydrate, grs. 10 given per rectum about a quarter of an hour after a small warm soap enema, sometimes proved very useful in quieting a noisy patient.

Some slept peacefully both during and between the pains, and lay like logs during the actual delivery.

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Chloroform was not given except when the forceps were applied, and on three other occasions. It would be good practice to give a whiff of chloroform during the actual delivery, so that the perinæum might be kept intact. It was withheld in this series in order that the merits of the narcosis might be tested. The perinæum if lacerated was sutured by a post-graduate as soon as possible after the delivery, without any anæsthetic.

The usual bell was rung for the students to attend the delivery. It was found that as soon as the baby was born people would question the woman as to what she had felt. In a few cases she reconstructed the whole delivery; such cases, therefore, could not be regarded as successful. For this reason, the students were asked to be as quiet as possible. The baby was removed to another room as soon as its cord was tied. The mother was allowed to sleep on in the same ward, which was again darkened, and she was not questioned about her experience until some hours had elapsed.

There was no selection of cases, but if there was any disproportion between the presenting part and the mother's pelvis, or any other definite complication, the patient was considered unsuitable.

RESULTS OF TREATMENT.

The result in twenty-six out of the forty-four cases treated was excellent, that is to say, the patient had no recollection of pain during the course of her labour. In seven cases the impressions of the woman were not recorded. One case was an absolute failure. The remaining patients remembered a few odd pains.

On no occasion was any untoward sign or symptom observed. The pulse and respiration rates remained apparently very little affected by the drug. No patient became delirious or difficult to control except during the actual delivery.

In no case did the baby cause any anxiety, and the

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with the exception of the patient mentioned above, excellent, while the puerperium was completely uninfluenced by the drug.

The average number of doses of scopolamine was 4.3, the largest number of doses given was 11, the smallest number one.

The average weight of the babies was 7 lb. 2 oz.

The forceps were applied seven times, so that operative interference was called for in 16 per cent. of This is undoubtedly a high incidence and requires some consideration. The teaching at the Rotunda Hospital at present is that the mere application of the forceps does not make a case abnormal. They are applied when the head ceases to advance, and before symptoms of distress arise in either the mother or child. Of the first 16 cases, four were terminated by forceps; of the remaining 28 only three were so delivered. In four cases the head of the child was presenting in the occipito-posterior position, while in two of the three remaining cases the pelves The facts remain that the were contracted. scopolamine did not exert a lessening influence on the pains, and that the average duration of labour was shortened.

One interesting investigation was into the frequency and duration of the uterine contractions. The nurse laid her hand on the patient's abdomen during a pain, and charted its time and duration. It was found that the average number of pains from the quarter dilatation of the external os uteri to delivery was 102. In 27 out of the 44 cases the number was under 100. The largest number was 277, whilst the smallest was 34. It was found impossible to chart, or to find any regularity in the frequency or duration of the pains. During the first stage of labour they occurred on an average every five minutes, and an interval of ten minutes or more was rarely recorded. Their duration was from thirty

bogey of oligopnæa was conspicuous by its absence. The child almost invariably cried as it was born, and remained a good colour. Indeed, the babies made so much noise that it was an important part of the technique to remove them from the ward as soon as the cord was tied. Of the babies delivered by the forceps, only one was troublesome to bring round; one other baby took ten minutes to resuscitate, but caused no alarm, and the sister did not consider it necessary to send for me.

The perinæum was lacerated in twenty-five cases, and remained intact in nineteen cases. The perinæum, therefore, was lacerated in an unduly high percentage of cases. It must be remembered, however, that all except two of the patients were primiparæ, and that the deliveries were conducted by pupil-midwives. It would, nevertheless, be an advantage to administer chloroform during the passage of the child's head through the vulva.

The placental stage was very satisfactory. With one exception all the placentæ were expressed by the Dublin method. In case 40 there was some bleeding, and the placenta had to be expressed by Crede's method. The relaxing of the uterus about half an hour after the confinement, observed by other writers, did not occur on a single occasion.

The average number of hours during which the patients in this series of cases were in labour was 16.7, while the average number of hours in twilight sleep was 10.7. The figure 16.7 is probably too high, as the number of hours in labour is recorded by the staff-nurse, who obtains her information from the patient. In any case, the average number of hours that a primipara is in labour is estimated to be 18 or more. Twilight sleep, therefore, seems to shorten the duration of labour.

The condition of the patient after delivery was,

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seconds to a minute and a quarter. During the second stage the pains were recorded at a fairly regular interval of five minutes. In a few cases the last few pains occurred every two minutes. Curiously enough, a period of ten minutes was occasionally recorded towards the extreme end of the labour during which no pain was observed. The duration of the pains during the second stage was almost invariably shorter than during the first stage. It rarely exceeded thirty seconds, and never one minute.

Six cases of primary uterine inertia were included in the series under discussion. Quinine hydrobromide was given in 10 gr. doses, and at two-hourly intervals, to stimulate the pains. It was found safe to give pituitrin after two or three doses of quinine had been given; the dose should never exceed four minims, but may be repeated in twenty minutes, if in the meanwhile it has not caused any strong contractions. A warm soap enema, followed in half an hour by an injection of chloral hydrate, grs. 15, proved useful. Therefore, contrary to the generally accepted opinion, I would suggest further trial of the use of twilight sleep in the treatment of primary uterine inertia.

There is, of course, one great danger to bear in mind: it is very easy to confound inertia with a minor degree of contracted pelvis. Clearly the same error of diagnosis may be made whether the patient is, or is not, under the influence of scopolamine, but the difference lies in the fact that the drug may mask the symptoms.

CONCLUSIONS.

It is now necessary to draw some conclusions as to the merits of twilight sleep. The method seems quite safe, and not a single untoward symptom in the mother or the child was recorded. The convalescence of the patient was, if anything, accelerated and the duration

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of labour was shortened.

When it is realized that the ward was extremely noisy and in many respects unsuitable; that the nurse in charge of the patient was a pupil-midwife who was very rarely a trained nurse, and that practically every case was looked after by a new nurse; that the delivery was invariably attended by a crowd of students and conducted by a pupil-midwife, and that the perinæum was subsequently sutured by a post-graduate student without any anæsthetic, it is hard to form any opinion other than one of unqualified praise for twilight sleep.

It is preferable to carry out the treatment in a hospital or nursing-home, but there is no reason why it should not be carried out in a private house if the services of a competent nurse can be obtained, and the relatives are forewarned that the patient may make a great deal of noise. The routine treatment should not be started until the external os uteri is one quarter dilated, which may be ascertained by rectal examination. As the dosage is so much less than that hitherto suggested, the constant supervision of the obstetrician is unnecessary, providing he is absolutely assured that the case is normal. If he visits the patient four to six hours after the commencement of the treatment he can determine whether the subsequent doses of scopolamine should be given at two or three-hourly intervals. Should the woman inadvertently come too far round. it is advisable to get her under again, using gr. 1/225 of scopolamine.

Under favourable circumstances the failure to obtain an "excellent" result will not be frequent. In any case, supposing the treatment absolutely fails, no great inconvenience has been caused, no great expense incurred, and above all, no risk either to the mother or to the child has been taken.

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Urinary Calculi.

By W. K. IRWIN, M.D., F.R.C.S.

Surgeon to Out-patients, St. Paul's Hospital for Genito-Urinary Diseases, etc.

RINARY calculi are composed of urinary salts held together by an albuminous or colloid material, and are named from their predominating constituent. The salts are as a rule the main element, but the organic matter is in excess in fibrinous and blood calculi. Primary stones develop from undetermined causes and without any obvious inflammation or infection, while secondary stones occur in alkaline-infected urine. Uric acid, urates, and calcium oxalate are the chief constituents of primary calculi, and mixed phosphates of secondary. The centre of a stone may belong to the primary type, but the superficial layers, as a result of stagnation and infection, to the secondary. Cystin, xanthin, and indigo calculi are occasionally found. The opacity of the stones to the X-rays depends upon the nature of their composition. -Calcium oxalate gives the heaviest shadows, and calcium phosphate comes next in order of density. Cystin and xanthin, owing to the sulphur which they contain, are more opaque than triple phosphates, urates, or uric acid.

RENAL AND URETERIC CALCULUS.

Renal calculi may be either single or multiple, the larger single stones tending to acquire the shape of the pelvis and calices. Ureteric calculi are as a rule renal calculi, which have become impacted on their way down the ureter; they are usually small and ovoidal or oblong in shape. The most common sites of impaction are where the ureter joins the renal pelvis, just before it

crosses the common iliac artery, and just before it enters the bladder.

Pain as a rule is the outstanding feature of renal calculus, and may occur in the form of site pain, referred pain, or renal colic.

The site pain is as a rule a dull ache, more prominent during the diurnal hours of activity and felt in the front of the loin, in the posterior renal angle behind, or in both places; it is aggravated by exertion, jolting, or if a pyelitis supervenes. The referred pain may be assigned to the healthy kidney (reno-renal reflex), testicle or labium, bladder, urethra, thigh, knee, calf, inside of the foot, sole, or heel, and may be of a burning nature.

Ureteric calculi often cause similar site and referred pain, but a stone in the lower part of the ureter is more likely to give rise to irritability of the bladder and perhaps to slight or severe pain at the end of the urethra during the latter part of micturition or immediately after the act.

Renal or ureteric colic is due to a spasmodic contraction of the renal pelvis or the ureter in an effort to detach the stone and pass it on towards the bladder. It may be described as tearing and griping, and is characterized by agonizing paroxysms radiating down the line of the ureter and along the urethra, or referred to the external abdominal ring and into the testicle with resultant contraction of the cremasteric muscle. It often causes faintness, nausea, or vomiting, and may be accompanied or followed by hæmaturia.

Calculous anuria, or sudden suppression of urine due to the blocking of the pelvic outlet or the ureter by a calculus, is a serious complication the possibility of which must always be borne in mind. On the other hand, the presence of a stone may lead to a polyuria.

Diagnosis.—The condition must be diagnosed from other affections of the urinary tract, such as pyelone-

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advisable in some cases. The risk of infection, of dilatation of the kidney, and of calculous anuria must be borne in mind. Before operating for the removal of a stone, the surgeon must satisfy himself that a second kidney exists and is of adequate functional efficiency. The question whether a pyelo-lithotomy, a nephrolithotomy, or a nephrectomy shall be done, as a rule cannot be decided until the kidney has been exposed. Pyelo-lithotomy is the operation of choice, but is contraindicated when the organ is more or less fixed by inflammatory tissue and is not easily deliverable in the wound. Nephrectomy is a last resort. In calculous anuria the obstruction should be relieved as soon as possible by doing a nephrotomy and inserting a large drainage tube into the kidney pelvis. The stone itself, unless it is readily accessible, should be left until the critical period is over.

VESICAL CALCULUS.

Vesical calculi usually occur in the male. They often originate in the kidney, but may form in the bladder around a foreign body or as a result of some cause of urethral obstruction, such as an enlarged prostate. Frequent micturition, pain and hæmaturia are the chief symptoms, but incontinence or difficult micturition may occur.

The excessive frequency is experienced during the diurnal hours of activity, but, unless infection is superimposed, it ceases at night when the patient is resting. The urgency and pollakiuria are increased by walking or jolting, which bring the calculus into contact with the sensitive vesical neck.

The pain due to a stone in the bladder occurs chiefly at the end of micturition, is described as burning and stinging, or sharp and cutting, and may be very severe in children. It is often preceded by attacks of renal colic and is usually felt at the vesical neck or in the

phritis, pyonephrosis, hydronephrosis, tuberculosis, or neoplasm. The passage of oxalate crystals, blood-clot, or debris from the kidney may cause pain similar to that due to calculus, while, outside the urinary tract, appendicitis, or biliary colic without jaundice, may be mistaken for it. In biliary colic the pain begins over the gall-bladder and radiates inwards, in renal calculus it is usually most prominent at the posterior renal angle and radiates downwards to the groin, testicle, or penis. When hæmaturia is the only symptom the condition may be ascribed to neoplasm or to hæmorrhagic nephritis. Palpation, examination of the urine, cystoscopy, radiography, and pyelography, are important in diagnosis. Radiography is most valuable, more especially after an opaque bougie has been passed up the ureter. The bougie is useful in determining the position of doubtful shadows; in some cases its passage is arrested by the stone. Cystoscopy is advisable to exclude vesical causes of the symptoms and may give definite evidence of a ureteric calculus. The stone can, in some cases, be seen to be engaged in the ureteric orifice: while in others the mucous membrane round the opening may be swollen, red, and hæmorrhagic, indicating that a stone is on the way down.

Cystoscopy, after the intramuscular or intravenous injection of indigo-carmine, may be useful in estimating the impairment of the renal efficiency and the amount of obstruction.

Treatment.—Local applications, hypodermics of morphia and atropine, and occasionally the administration of chloroform may be necessary for renal colic. As regards the stone itself, in the absence of infection or some other serious complication, expectant treatment may be justifiable if the calculus is small, seems likely to escape spontaneously, and is not causing great pain. The diuresis should be increased by the ingestion of large quantities of bland fluid, and urotropine is

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advisable in some cases. The risk of infection, of dilatation of the kidney, and of calculous anuria must be borne in mind. Before operating for the removal of a stone, the surgeon must satisfy himself that a second kidney exists and is of adequate functional efficiency. The question whether a pyelo-lithotomy, a nephrolithotomy, or a nephrectomy shall be done, as a rule cannot be decided until the kidney has been exposed. Pyelo-lithotomy is the operation of choice, but is contraindicated when the organ is more or less fixed by inflammatory tissue and is not easily deliverable in the wound. Nephrectomy is a last resort. In calculous anuria the obstruction should be relieved as soon as possible by doing a nephrotomy and inserting a large drainage tube into the kidney pelvis. The stone itself, unless it is readily accessible, should be left until the critical period is over.

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The excessive frequency is experienced during the diurnal hours of activity, but, unless infection is superimposed, it ceases at night when the patient is resting. The urgency and pollakiuria are increased by walking or jolting, which bring the calculus into contact with the sensitive vesical neck.

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urethra slightly behind the external meatus, less frequently in the perineum or at the root of the penis. It tends gradually to diminish as the calculus becomes larger and smoother owing to the deposit of phosphates around it, and may be negligible in old men if the stone lies in the post-prostatic pouch.

The hæmaturia is terminal and usually small in amount, but may be profuse if the bladder becomes infected and therefore engorged. The effect of rest upon pain and hæmaturia due to a vesical calculus is so great as to be almost diagnostic.

Stoppage of the stream may result from the stone rolling into the urethral opening, and the patient may find that he can micturate more freely if he lies upon his back. Nocturnal enuresis is not uncommon, and male children with vesical calculus are often said to "pull at their foreskins."

The condition is diagnosed by the passage of a sound, cystoscopy, radiography, etc.

The stone is removed by litholapaxy or lithotomy. Litholapaxy is the operation of choice for the expert, provided the stone is not encysted, very large, or very hard, and is not complicated by an enlarged prostate. It has the great advantage of keeping the patient in bed for a few days only. The suprapubic route is usually adopted for a lithotomy, but the stone may be removed from the perineum after certain operations on the urethra.

URETHRAL CALCULUS.

A phosphatic stone may originate in the urethra as a result of decomposition superimposed upon obstruction, while stones containing uric acid, oxalates, etc., which have formed in the kidneys or bladder, may become impacted in the canal during micturition. Stricture is a common cause of the arrest of renal or vesical and of the formation of urethral calculi.

In the case of an impacted stone there may be a

URINARY CALCULI

history of renal colic with its typical features, or of symptoms associated with vesical calculus, such as pain and hæmaturia occurring chiefly at the end of micturition and aggravated by movement. The patient will probably give an account of sudden severe pain during micturition and of complete or partial stoppage of the act. In children nocturnal enurses is not uncommon.

The condition may be diagnosed by palpation, a metallic click on passing a sound, urethroscopy, and X-ray examination.

In some cases it is possible to push a stone in the prostatic urethra back into the bladder, crush it and remove the fragments. If this cannot be done, the membranous urethra should be opened and the calculus removed by the perineal route. An external urethrotomy may also be necessary when the bulbous urethra is the site of the obstruction. A stone in the fossa navicularis may be extracted with sinus forceps, by slitting the meatus, etc. Any predisposing cause, such as stricture, should be dealt with.

PROPHYLAXIS.

Everything possible must be done to prevent the recurrence of calculus formation. The general health should be regulated and local conditions favouring infection and obstruction attended to. The exact nature of the calculi should be determined and drugs and a diet suitable to each individual case ordered, the aim being to diminish the exogenous or food source of the substance in question, to control its endogenous production, and to prevent the formation of crystals in the urine.

In the case of *uric acid calculi* a small quantity of beef and mutton may be allowed, but not veal, pork, or cellular organs containing large quantities of nuclein, such as kidney, liver, brain, or sweetbread. Fruit, vegetables, and salads are beneficial, and bread, eggs,

milk, butter, and cheese may be taken.

Very weak tea and coffee and small quantities of sugar are allowed. Port, burgundy, and sherry should be avoided, but a little whisky, light claret, or white French wine is permissible.

The kidneys must be flushed out with quantities of plain water, aerated distilled water, or alkaline mineral waters, such as Contrexéville or Vittel. The action of the bowels should be regulated, open air exercise taken every day, and sweating encouraged. Drugs such as potassium citrate (grs. xxx to xl, thrice daily) are useful. If it is thought inadvisable to keep the urine alkaline, urotropine or piperazine (grs. v to xv, thrice daily), which tend to acidify it and are said to dissolve uric acid, should be given.

In oxaluria hard water and articles of diet such as milk, eggs, beetroot, spinach, asparagus, horse-radish, tomatoes, rhubarb, strawberries, gooseberries, currants, tea, coffee, and pepper, which contain much calcium or oxalic acid, must be avoided. Meat, potatoes, peas, apples, and other foodstuffs rich in magnesium are allowed. Mineral waters poor in calcium, like Contrexéville and Vittel, or rich in magnesium, like Kissingen, are admissible. Twenty-grain doses of acid sodium phosphate, the natural solvent of oxalate of lime in the urine, should be given three times a day. When there is severe irritation a short course of sandal-wood oil may be useful.

In phosphaturia the use of vegetables should be restricted, meat eating encouraged, and acid sodium phosphate or dilute nitro-hydrochloric acid administered.

It must be clearly understood that no system of diet and no drugs can be guaranteed absolutely to prevent calculus formation.

Gangrene Occurring in the Aged:

With a Summary of Twenty Cases Treated by Amputation.

BY CHARLES NOON, O.B.E., F.R.C.S.

Assistant Surgeon, Norfolk and Norwich Hospital; Surgeon-in-charge, Ministry of Pensions Special Surgical Out-patient Clinics, Norfolk Area, etc.

HE cases that have been grouped together under the term senile gangrene include a number of pathological vascular conditions possessing one common factor, namely, senility. For descriptive and clinical purposes the three main groups of cases can be classified as follows:—

- 1. Gangrene due to capillary thrombosis.
- 2. Gangrene due to primary obstruction of the large arteries.
- 3. Gangrene due to inflammatory causes occurring in cases in which there is also some arterial disease or degeneration.
 - 1. GANGBENE DUE TO CAPILLARY THROMBOSIS.

The classical description of senile gangrene is based on this variety which accounts for a large number of the cases seen. Inquiry will elicit the fact that the most distinctive characteristic of this type is that the condition starts independently in several areas. The gangrenous process in each toe may be observed to start in a definite centre of its own and generally shows itself as a small black spot on the toe or toes affected. There is at the same time some loss of sensation, and the

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condition is often very painful, being worse at night than in the day-time, and often keeping the patient awake for many hours at a time.

The rapidity of the spread of the condition depends on the vascular changes taking place; if the disease is confined to the capillaries the toes will alone become gangrenous and die, but if the large arteries become involved the gangrene will spread to the foot and the whole foot may mummify.

2. GANGRENE DUE TO PRIMARY OBSTRUCTION OF THE LARGE ARTERIES.

This condition arises either from embolism or from thrombosis. An embolus will be likely to lodge at the division of an artery, where a sudden diminution in the calibre of the vessel takes place. In the lower limb emboli tend to lodge at the division of the common femoral artery into the superficial and deep femoral arteries and at the division of the popliteal artery into the posterior and anterior tibials.

Thrombosis may occur in a large artery and usually starts in the same position as emboli are likely to lodge, but thrombosis depends chiefly upon the local disease of the vessel wall and is due to a deposit of fibrin upon a roughened patch in the arterial wall caused either by exposure of a calcareous area or by atheromatous degeneration of the inner coat of the artery. The lodging of an embolus and the development of thrombosis, occurring as they do at the same situations in the course of an artery, will frequently give rise to somewhat similar symptoms and signs, but whereas embolism is a sudden event thrombosis is gradual in its development.

The clinical picture presented by the sudden blockage of a large artery of the lower extremity is a sudden severe attack of pain in the limb, followed by loss of function. The foot often becomes blue and cold, the tibial pulses cannot be felt, and gangrene, which is often

GANGRENE IN THE AGED

of the moist variety, rapidly develops. In cases of thrombosis the onset of the symptoms are less sudden, there is pain in the limb, but the signs of obstruction to the vessels are often incomplete and the onset of the gangrene is less sudden in its development, slower in its progress, and more often of the dry variety than the moist; in addition, the collateral circulation has a better chance of being established.

3. GANGRENE DUE TO INFLAMMATORY CAUSES OCCURRING IN CASES IN WHICH THERE IS ALSO SOME ARTERIAL DISEASE OR DEGENERATION.

Under this heading are included a number of cases that develop gangrene in which there are other factors present as important as the changes that occur in the vessels giving rise to the gangrene. Gangrene not infrequently occurs as a severe complication in diabetes, it is liable to develop in trophic ulcers dependent upon some nervous lesion, and it may sometimes occur as a complication of such an acute illness as, for instance, pneumonia.

In considering diabetic gangrene it is important to distinguish it from the type of dry senile gangrene, which is occasionally associated with glycosuria but not with the other signs and symptoms of diabetes. The gangrene in this class of case is the cause of the glycosuria, and not caused by it; in other words, if the gangrene is removed the glycosuria disappears from the urine without any other treatment.

TREATMENT.

From observations on cases that have come under my notice, I am led to believe that considerable differences of opinion exist as to the treatment of cases of gangrene occurring in old people. Of the utmost importance is the complete examination and investigation of the case before any treatment is advised. Whenever possible some idea of the pathological cause of the gangrene

should be determined. The urine must always be carefully examined. An X-ray examination of the lower extremity should be made to decide if calcareous degeneration of the arteries exists to any marked extent. Care must be taken to exclude the possibility of any disease of the nervous system in which gangrene of the extremities is likely to be a complication.

Clinically considered, the types of cases that present

. themselves for treatment are:-

1. Cases of dry gangrene limited to the toes.

- 2. Cases of dry gangrene spreading from the toes to the foot.
 - 3. Cases of moist gangrene.
- 4. Cases of gangrene arising in such conditions as perforating ulcer of the foot, gangrene associated with diabetes or gangrene occurring in association with some acute toxic condition.

Prophylactic and Palliative treatment.—Before the gangrene has been definitely established, everything possible should be done to prevent its onset. The circulation should be stimulated; the limb should be kept warm; the elevation should be sufficient to encourage venous return and prevent congestion of the limb.

It is possible at this stage of the condition before the onset of gangrene that the operation of sympathectomy or alcoholic injections, as advised by Sampson Handley, might be of some benefit to the patient. When gangrene has been definitely established everything must be done to attempt to promote the collateral circulation. The parts must be kept warm and dry. Opium should be given as it may help to relieve the pain and aid in the dilatation of the capillaries.

Operative treatment.—The opinion as to the correct operative treatment in cases of senile gangrene has undergone considerable change during the last seventy years. It is interesting to trace these changes of

GANGRENE IN THE AGED

opinion. Brodie, writing in 1865, said:-

A man has mortification of the toes, and, independently of experience, you might naturally say, "Here is a most dangerous disease; why not amputate the limb?" It is probably unnecessary for me to tell you that it would be contrary to the established rules of surgery (for which I have great respect), to amputate a limb under such circumstances. I have never seen it done; I have never done it myself; but I have heard of cases in which the surgeon was—shall I say?—thoughtless enough, or ignorant enough, to venture on this summary proceeding of cutting off the leg because the toes were beginning to mortify. In every instance the stump mortified and the patient died.

In 1882 Cross advocated amputation. He recommended, if gangrene were limited to the toes, amputation high up in the leg; if it affected the foot and ankle, removal of the limb through the lower third of the thigh. In 1883 Hutchinson advocated amputation through the thigh in all suitable cases.

Since that time amputation for suitable cases has generally been advised, but from cases which are seen even at the present time the advantage of amputation and the benefit likely to be gained from it seem scarcely to be generally appreciated. In every case of senile gangrene before an operation is performed, the case in hand must be carefully considered from every aspect. Definite rules cannot be laid down for the treatment of all cases, but in the consideration of operative treatment there are three main questions that always have to be answered, namely:—

- 1. Why operate?
- 2. When (at what time) to operate?
- 3. Where (at what site) to operate?

These questions can best be considered and answered in relation to the clinical types of gangrene that come under notice.

Why operate?—In cases of dry gangrene limited to the toes the patient, by reason of the disability, is confined to bed and often suffers severe pain. Operation in sultable cases is indicated to relieve the

should be determined. The urine must always be carefully examined. An X-ray examination of the lower extremity should be made to decide if calcareous degeneration of the arteries exists to any marked extent. Care must be taken to exclude the possibility of any disease of the nervous system in which gangrene of the extremities is likely to be a complication.

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from a consideration of the extent of the gangrene, the condition of the vessels as determined by clinical and X-ray examination, and from the age of the From experience and observation I am patient. strongly in favour of performing amputation in these cases in the lower third of the thigh in order that a serviceable amputation may be obtained. my experience it is very unlikely that a good stump will be produced if an amputation is done below the knee on a patient over sixty years of age in whom there is arterial disease. For the operation of amputation to be satisfactory it is necessary to produce a stump which is healed and painless, and which is able to sustain the direct pressure of part of the body weight upon the artificial limb, and this is very unlikely if amputation be done below the knee.

BESULTS OF OPERATION.

During the last five years there have been under my care 20 cases of gangrene occurring in aged patients. All the cases have been treated by operation. In 19 cases an amputation was done above the knee on the affected side; in one case an amputation was done below the knee.

The oldest patient operated upon was 83 years of age, the youngest 56. Eighteen of the patients were males and 2 were females; 18 patients recovered and were discharged from hospital, 2 patients died.

- 1. Cases of Capillary Thrombosis.—Eleven cases all treated by operation; 10 recovered, 1 died.
- 2. Cases of Primary Obstruction of a large Artery.—Four cases, all treated by operation; 3 recovered, 1 died.
- 3. Cases of Diabetes complicated by Gangrene.—Three cases, all treated by operation; 3 recovered.
- 4. Gangrene associated with Inflammatory and Toxic Conditions.—Two cases treated by operation; 2 cases recovered.

pain and to enable the patient to spend the remainder of life in comparative comfort. When gangrene has spread from the toes to the foot and ankle operative treatment is more imperative than in cases of gangrene of the toes only, if the patient's life is to be saved.

In cases of moist gangrene, if the patient's general condition will allow of it nearly all cases should be subjected to operation, as it is practically the only method of saving the patient's life. Moist gangrene is the type more often met with as a complication of diabetes and is necessarily of a much more dangerous type than the ordinary dry senile gangrene, but frequently even in these cases amputation is often possible if the treatment of the diabetes can be successfully carried out augmented by insulin. In some cases, not of a severe type, insulin treatment will even be successful and the operation of amputation may be avoided.

When to operate?—In cases of dry gangrene limited to the toes, operation is not urgently called for, but it should be done as soon as it can be conveniently arranged. It should be done before the condition of the patient is adversely affected and before there is any rise in temperature or pulse rate. Often the severe pain the patient suffers is sufficient to indicate and justify the operation of amputation. In cases in which the gangrene spreads to the foot or in which gangrene results from the blockage of a large vessel, the sooner the operation is done the better will be the patient's chance of recovery.

In cases of diabetic gangrene it is often advisable to postpone operation until the general condition of the patient has been improved, but even in these cases amputation must not be unduly delayed.

Where to operate?—The indication as to the correct site at which to perform amputation is suggested

severe reactions in any circumstances, and I have found that they may be avoided by a simple expedient.

The vaccine is standardized so that one cubic centimetre contains a medium dose of the known pathogenic organisms. One cubic centimetre is taken and is diluted with 24 cubic centimetres of carbolized saline; and 0.1 to 0.2 c.cm. of the diluted vaccine is employed as the initial dose. Where the patient suffers from severe or frequently recurring asthmatic attacks this dilution may be carried further, but as a matter of practical experience I have met with no undesirable reactions since I began treatment in this tentative manner some years ago. Where there is no indication for surgical treatment, change of environment seems to be the only alternative to vaccine therapy. This is frequently impracticable for economic reasons, as in the following cases:—

Case 1. First seen at age of twenty-two; history of "sore throats" since childhood. Next eight years under routine treatment at frequent intervals; never quite free from cough; frequent hoarseness; occasional aphonia; some constant discomfort; pain during exacubations, but little or no dysphagia. Vaccine first used in 1909. After first inoculation, reported throat more comfortable than it had been for a long time. Practically free from all symptoms in less than three months. Remained well until 1914, when there was a recurrence of previous symptoms, associated with a sharp febrile attack. Another course of vaccine. Has remained well up to present time (1925).

I do not propose to go into the bacteriology of these cases, but I may mention that in this case there was a pure culture of staphylococcus aureus. I think a bare statement of the facts is more eloquent than any comments I can make, but I may add that this patient was one of those whom one almost dreads to see. I tried the vaccine at first rather in despair than with any expectation of such an extraordinarily good result.

Case 2. Sent to me by Dr. H. F. Lee. After removal of an ovarian cyst in 1912, she contracted a very irritable and persistent cough; almost constant hoarseness; burning sensation in throat; expectoration scanty and viscid; one specialist expressed the

Vaccines in Chronic and Recurring Catarrh of the Respiratory Tract.

By J. STAVELY DICK, M.B.

Hon. Clinical Pathologist, Hospital for Skin Diseases, Manchester; late Pathologist, Northern Hospital, Manchester; late Temporary Hon. Physician, Ancoats Hospital.

Ithat vaccine therapy is frequently useful in catarrhal conditions of the respiratory tract. What has surprised me, however, and what I wish to direct attention to, is the long periods of immunity, or comparative immunity, which one sees in many patients so treated. Why the immunity conferred by inoculation should last much longer in these cases than that conferred by an attack of the disease is a moot point; but it is usually more important to appreciate facts than to attempt explanations, and I desire at present merely to record in THE PRACTITIONER a few cases illustrating the point in question.

The first case was treated sixteen and the last case four years ago. Autogenous vaccines were employed; they were prepared in the ordinary way, from cultures on blood agar. No attempt was made to "detoxicate" them, as Thomson and others have suggested. This was, perhaps, fortunate, as Davidson 1 and Dunlop 2 appear to have demonstrated that such modifications diminish or destroy antigenic efficiency. It is true that where there is an asthmatic tendency a moderate dose of ordinary vaccine may not only aggravate temporarily the catarrh, but also bring on an attack of asthma and alarm the patient. It is desirable to avoid

VACCINES IN CATARRH

I may repeat that in this case the asthmatic symptoms were comparatively mild, and there was no evidence of emphysema. In old standing cases of bronchitis, with emphysema, asthma, or cardiac trouble, some amelioration is possible, and not infrequently secured by vaccine therapy, but, of course, restitutio in integrum is out of the question. I have had a good many such cases, and in some the results were gratifying, but a detailed account of such cases, where improvement is comparative only, is open to a suspicion of conscious or unconscious exaggeration. My experience, at all events, points to the conclusion that an early resort to vaccine therapy will in future materially reduce the incidence of these serious sequelæ.

Whether vaccine therapy has, on the whole, achieved as much in various fields as some early enthusiasts foreshadowed, may be a matter for debate, but I think there is no question that its introduction has increased enormously our capacity for dealing efficiently with chronic and recurring catarrhs. It fails, however, occasionally. I give one instance:

Case 7. A student, sent to me by the late Dr. W. E. Sawers Scott, suffered from chronic catarrh of the naso-pharynx for some years: anæmic, with poor muscular development; under vaccine treatment for over a year, during which several vaccines were prepared from sputum or direct from the nose and fauces. Small doses and large doses were tried at varying intervals, with general tonics and cod-liver oil. There was, however, no improvement at the end of treatment, when he was advised to go for a long sea voyage.

Out of over 400 patients I have only met with three other cases where the results were equally disappointing. I omit, however, from consideration, soldiers who had been gassed—here the treatment was uniformly disappointing.

References.

¹Davidson, British Medical Journal, 13 Dec., 1924. ²Dunlop, ibid.

opinion that it was tuberculous. I began vaccine treatment in February, 1914; improvement slow; condition satisfactory in the following October. Remained well till 1917, when there was a slight recurrence of previous symptoms, which cleared up after a few inoculations. She is not now (1925) completely free from cough, but it is so slight that she does not require any treatment. Her general health is normal. No tubercle bacilli were found.

- Case 3. Frequently recurring catarrh, involving nose, fauces, and larynx; occasionally bronchitis; general health indifferent; seldom well for more than a month or two. Vaccine treatment first resorted to nine years ago during an unusually severe attack of bronchitis at the age of 40. Excellent immediate result. Since then she has had a quinsy, one slight attack of bronchitis, and encephalitis lethargica (diagnosis confirmed in consultation by Dr. C. H. Melland). Up to date, however, she has remained free from her troublesome recurring catarrhal attacks. Her general health is now very good.
- Case 4. Lady aged seventy-four; subject to bronchitis; had an attack which lasted seven weeks before vaccine was employed. Insomnia the most troublesome symptom due to her very irritable cough. After first inoculation, cough was relieved and she slept well. Remained free from bronchitis for three years, then a somewhat similar attack, which again yielded at once to vaccine treatment. This was begun at her urgent request on the tenth day. Died recently in her seventy-ninth year from pneumonia.
- Case 5. Girl aged fifteen when first seen; "hardly ever free from colds since childhood"; tall; slender; flat chest; anæmic; brother in a sanatorium. She suffered ten years ago from intractable bronchitis with more or less fever; it had persisted for over two months when vaccine was first tried; there was some improvement from the first, but her chest was not free from physical signs for almost three months. She has been under treatment since that time occasionally for anæmia and other ailments; but she has had no bronchitis and comparatively few colds during the last ten years; her general health is quite satisfactory at present (1925). There was in this case, of course, some anxiety with regard to a tuberculous infection; tubercle bacilli, however, were not found, though frequently searched for.
- Case 6. A Manchester solicitor whose professional activities involve frequent journeys to London, was for many years "hardly ever quite free from colds," which from time to time developed into bronchitis with mild asthmatic symptoms. Railway travelling seemed to aggravate his troubles, and as a consequence an important part of his professional work was in jeopardy. Vaccine treatment was begun four years ago, with excellent results from the first. He still insists on having an inoculation every three months, though he has been practically immune from his old symptoms since the first few inoculations. He stresses the fact that when he now gets a cold (he had only two last winter), it clears up much quicker than formerly, and so far he has had no return of his bronchitis and asthma.

results in cicatrization. When such trauma occurs, the latter condition, from a practical standpoint, is similar to that in congenital cases, and whenever possible the treatment is on the same lines.

The clinical picture of the deformity shows a varying amount of lateral bending with rotation of the cervical spine, i.e. scoliosis is present, the complete entity being rotato-lateral curvature with shortening of the sternomastoid and other soft structures on the affected side.

In wryneck, the primary curve is in the cervical To effect a cure, the scoliosis must be permanently corrected, and to maintain this correction, the soft tissues must be equally and permanently lengthened. The problem may be stated inversely. The practical and important point, however, is that the correction of the vertebral deformity is the greater desideratum. When the deformity has been present for years the rectification of the spinal curvature is not so simple as would appear, for deep-seated changes have occurred. Fasciæ and ligaments, as well as muscles, have become permanently shortened. The skeletal changes take the form of alteration in the vertical depth of the vertebral bodies and intervertebral discs, on the concave side these are shortened and proportionately increased on the convex side of the curve.

Unless all these structures are dealt with effectively, namely, muscle, fasciæ, ligaments and cervical spine, a successful result need not be expected by operation on the sterno-mastoid alone.

Although contracture is present, no history or sign of injury to this muscle has been noted in my experience. Those observed seem to have been present at birth, and in my opinion had origin in malposition in utero. But it is not to be denied that severe extensive trauma of the neck, by pressure on the pubic arch during labour, might cause extensive hæmatoma with ultimate fibrotic contracture of the muscle. Forty cases

The Treatment of Muscular Wryneck.

By ALEXANDER H. EDWARDS, M.B., C.M., F.R.C.S.

Late Senior Assistant Surgeon at Western Infirmary, Glasgow; late
Surgeon to the Orthopædic Department, Scottish National Red Cross
Hospital, Glasgow; Consulting Surgeon to Ministry of Pensions,
Glasgow.

HE purpose of this article in THE PRACTITIONER is not to discuss in a detailed manner the ætiology of muscular wryneck, nor to consider its classification, but to attempt to show what in my experience is the most successful method of cure. A line of treatment generally put forward in books is that of manipulation. This method is not always easy of application, requiring as it does a highly skilled person in daily attendance, and being usually recommended in infants or the very young. Some cases are manipulated under general anæsthesia to allow of overcorrection of the deformity. It is my opinion that if this is thought to be necessary, it is better to operate as hereafter to be described, for manipulative methods are liable to failure, i.e. partial correction only is attained, and relapse ensues.

Another method is that in which the sterno-mastoid muscle is divided and the head fixed in the corrected position by means of elastic traction. This is unsatisfactory as the spinal deformity is not primarily corrected, and the means of cure, namely, elastic traction, is left too much in the hands of the patient. Some surgeons lengthen the shortened muscle, indeed many concentrate their attention solely on it, showing that they believe the sterno-mastoid to be the centre of origin of the distortion at all times. And so it may be, as for example in severe trauma of this region with pyogenic infection, which

MUSCULAR WRYNECK

treatment, namely, that applied to the scoliosis. By careful and slow manipulation this must not only be corrected, but over-corrected. The ultimate result, whether successful or not, depends principally on this procedure, though it would be impossible to attain success in any case without preliminary division and stretching of the sterno-mastoid.

In the process of this over-correction, the head is carried to the opposite side, lateral bending and rotation of the head together comprising the sum total of the movements, with the result that the ear of the sound side comes to lie close to the shoulder, the chin at the same time pointing to the middle of the clavicle on the affected side. By this means the vertebræ and their intervening discs are brought to a position quite the converse of the former relationship. The head, neck, and part of the upper chest should now be enveloped in gamgee, which is fixed by a light bandage. Thereafter the head is maintained in the new position by a well-applied plaster of Paris bandage for about four weeks. The face and back of the head must be quite free and open for cleansing purposes.

The head is thus in an oblique position, which would appear to be not only undesirable but very irksome. This is overcome by the appearance of a compensatory thoracic convexity, so that the brow becomes nearly, or wholly, horizontal. When the plaster is removed, manipulation and active voluntary movements are begun. The new position is retained, more or less, for a time, but gradually changes to the normal. during this period that the exercises must be assiduously practised. These should all be directed towards stretching of the area already treated, and for correcting or maintaining the correction of the cervical Forcible passive manipulation should be done at first daily, and by the surgeon only. This part of the treatment should not, at least in the early stages, be left to a masseur or nurse. No gymnastic or redressement apparatus should be necessary in the majority of cases, if these are successfully operated on.

The resulting disfigurement is so slight as to be practically non-existent, a cosmetic result which is highly desirable in females.

of rupture of the sterno-mastoid were cited by Maydl, and these showed no subsequent wryneck. This would support the view held by many that this deformity is not always due to rupture of the muscle.

Whatever the ætiological factors may be, the operative treatment is well-defined, and consists, first, in division of the shortened muscle. This is not, however, the principal, but only a preliminary step. It may be divided secundum artem by the usual open incision above the clavicle, and if the patient is agreeable, there is no objection to this method. For cosmetic reasons, I prefer to do it through a small puncture made with a fine knife, i.e. for the skin incision.

For this purpose the head is rotated, so that the chin points towards the opposite side. It is of importance not to extend the head, as this would bring the internal jugular vein closer than is desirable to the sterno-mastoid, but extreme rotation of the head is necessary. This having been done, the skin opposite the sternal insertion where the incision is about to be made is pulled round horizontally outwards and incised in the vertical plane down to the inner margin of the tendon. As a result, the wound at the end of the operation returns to the inner side of the tendon or slightly behind The knife passes down to the tendon at its inner margin, so as to divide the deep cervical fascia, and before it is withdrawn, a grooved director is pushed inwards behind the knife to the depths of the incision. The knife may now be taken out, and the director used as a deep separator to clear the tendinous area, in front and behind. When this is done, the director is finally placed close to and behind the muscle as near as possible to its insertion. A narrow probepointed knife is then slipped along the director, the blade of the former lying flat on the latter during its introduction. The head rotation being fully maintained, the knife is turned with its edge forwards, and by a gentle sawing movement the tendinous fibres are divided. They give way with a snap, and the director becoming loose, may now be taken out. It is not necessary to divide all the muscle fibres at this point, but the dense tendinous part must be fully dealt with. The purely muscular part can be so stretched that the required position of the head can be maintained afterwards. A guard is placed over the wound, and the head and neck slowly extended in the position of extreme rotation. This stretching of the muscle fibres, given appropriate manipulation, is possible because these are already so much shorter than normal. Some time should be taken to accomplish this redressement. It ought to be done slowly and carefully, and when complete the change in length is quite obvious.

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Causation and Treatment of Osteomalacia.

J. P. Maxwell and L. M. Miles publish the results of their unique experience of osteomalacia in China, which is at present one of the most important world centres for the study of that disease, the incidence in the special area involved (notably the provinces of Shansi and Shensi, in Northern China) being from one to three per cent. of child-bearing women. They come to the conclusion that the disease is due to a deficiency diet, the principal lack being in a shortage of mineral content and the activator for calcium metabo-Lack of sunlight and movement are contributing factors in its production. The ovaries have nothing to do with the disease, and it is not necessary either to remove them or even to tie the Fallopian tubes, provided that the woman is treated with cod-liver oil and calcium, and that this treatment is kept up during any future pregnancy. By improving the diet and supplying cod-liver oil it should be possible in time to stamp out the disease. Animals also suffer from the disease, and can be cured by the administration of cod-liver oil.—(Journal of Obstetrics and Gynæcology of the British Empire, Autumn, 1925, p. 433.)

Treatment of Bronchitis by Pneumothorax.

A. de Martini makes the suggestion that, as an artificial pneumothorax should aid in immobilizing the inflamed walls of the bronchi, in bronchitis, and so give them a chance of healing, this method of treatment should be tried in cases of persistent bronchitis resisting the more usual methods. He gives details of its employment in a number of cases, with a considerable degree of success. From 85 to 200 c.cm. of air or nitrogen were introduced into the pleura on each side, at intervals of from two or three days to a week, and this treatment was kept up for five months. In one case the sputum

Practical Notes.

Varicose Ulcers and Epithelioma.

Leila C. Knox says that as epitheliomas, more frequently than other types of malignant disease, seem to be incited to growth by long-continued pathological processes in the tissues, it might be expected that ulcers arising on the basis of varicose veins, characterized often by years of neglect and subjected to various forms of stimulating treatment, would be not infrequently the starting point for cancers. It is, however, certain that such is not the case. Dr. Knox has made a thorough search of the literature, and finds that there are accurate reports of only fifty-nine epitheliomas arising in chronic varicose crural ulcers. She gives details of the only two cases which the records of St. Luke's Hospital, New York, furnish. She suggests that it is probable that chronic dermatitis, rather than the varicosities and altered blood supply, incites the condition. These tumours seldom arise until an ulcer has been present for at least fifteen years.—(Journal of the American Medical Association, October 3, 1925, p. 1046.)

Treatment of Eczema.

M. Brocq recommends, in the treatment of persistent eczema in the region of the perineum, the anus, and the external genitals, the following ointment:—

\mathbf{R}	Ichthyol	-	-	-	-	-	g. 1	(grs. xv)
•	Morphine l				- .	-	g. 0·20	(grs. iii)
	Cocaine hy	/drocl	olor.	-	-	-	ğ. 0.50	(grs. viiss)
	Zinc oxid.		-	-	-	-	g. 6	(5iss)
	Vaseline	-	_	-	-	-	g. 10	(5iiss)
	Lanoline	-	-	-	-	-	ğ. 6	(3iss)
		•					Ft. ung.	

Sig. Apply to the affected parts.—(Journal des Praticiens, October 3, 1925, p. 648.)

Treatment of Drooping Shoulders in Adults.

J. C. Wilson points out that in the shoulder girdle we find imposed over the conical thorax what we have in no other part of the body, namely, a considerable weight supported by no bony structure, the only bone connection to the rest of the skeleton being the clavicle, which simply acts as a radius for the shoulder to swing on when it droops. The shoulder is therefore entirely dependent upon the muscle structure for support, and this structure is liable to become overtired, and consequently overstretched and unable to perform its duties. This condition results in the drooping of the shoulders, and with the clavicle as a radius the shoulder cannot swing backward

or just drop, but must swing downwards, forwards, and inwards. The effect upon the underlying structures is evident. If the patient is fat, the pressure upon the nerve trunks may be general. Tenderness over the subcoracoid bursa is almost constant; pain is usually complained of in the region of the elbow; numbness is a common symptom, usually affecting the arm and hand. We are not accustomed to look upon a large, full-busted woman as the subject of round shoulders, but Dr. Wilson is inclined to believe that they are the most frequent victims. His treatment is simple. The pressure is removed by means of a simple shoulder brace, and he then depends on general rest and tonic treatment. The position in which the patient works may sometimes be changed with advantage. Again, the shoulder brace may be worn only tight enough to act as a gentle reminder that the patient is drooping, and she is able to hold herself without the active support of the brace or the overtiring of the muscles. Dr. Wilson appends details of twelve typical cases. -(Medical Journal and Record (New York), October 7, 1925, p. 386.)

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Early Diagnosis of Pulmonary Tubercle.

Struthers Stewart points out that, in the diagnosis of pulmonary tuberculosis, to wait until obvious physical signs have appeared in the lungs, with tubercle bacilli in the sputum, is a mistake. going over the histories of 200 consecutive cases of definite pulmonary tuberculosis it was noted that the three most common symptoms were cough (60 per cent.), lassitude (48 per cent.), and pyrexia (42 per cent.). He comes to the conclusion that symptoms of toxemia are the first to appear, and that until localizing symptoms become evident a definite diagnosis is not possible; in the majority of cases the physical signs of consolidation do not appear until comparatively late in the disease. A diagnosis can only be arrived at after a thorough examination by all the clinical methods, including X-rays, followed by a summing up of the symptoms and physical signs, corrected by a knowledge of the pathology of the condition. typical early case would present the following symptoms and physical signs: cough, lassitude, and pyrexia; and, on examination, deficient expansion, faint or harsh inspiration, with possibly, after coughing, a few fine crepitations in the axilla, round the nipple, or under the clavicle. Radioscopic examination would show deficient movement of the diaphragm on one side, with a shadow or shadows extending into the lung substance.—(Glasgow Medical Journal, September, 1925, p. 153.)

Endoscopy of the Abdomen.

O. E. Nadeau and O. F. Kampmeier give the results of a study of endoscopy of the abdomen, with a summary of the literature of the subject and a description of the technique. After the method had been perfected of exploring with light and lens the open cavities of the body, such as the rectum, bladder, esophagus, trachea, and bronchi, the idea of making the closed cavities accessible to the eye became more insistent, and the authors deemed it advisable to spend considerable thought and time in experimentation with it. The instrument they find best is an ordinary No. 26 F. direct vision cystoscope, inserting it into the abdominal cavity in the vicinity of the umbilicus with the aid of a special trocar and cannula, under local anæsthesia, the abdomen having been inflated with air. Such endoscopy, if carefully executed, is a relatively simple and safe procedure, and the authors, convinced of the great practical possibilities inherent in the method, recommend its wider use in clinical work.—(Surgery, Gynæcology, and Obstetrics, September, 1925, p. 259.)

The Relief of Renal Colic.

G. Marion gives details of a method of relieving renal colic, which is of considerable practical importance. As he observes, while morphine stops the pain it also contracts the ureter, so that the stone cannot come down, but belladonna, although it arrests the pain, suppresses the spasm of the ureter without influencing the peristaltic movements, and stones may be expelled in a short time.

PRACTICAL NOTES

He reports three cases, however, in which great relief was obtained by catheterization of the ureter, particularly in prolonged attacks of renal colic with fever and retention of stones. The passing of a catheter into the ureter, going over the stone, brought about immediate relief of the pain.—(Presse Médicale, August 5, 1925, p. 1043.)

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Effect of Impacted Wisdom Tooth.

H. Determan records a case in which an impacted wisdom tooth, exerting continuous pressure on the inferior alveolar nerve, caused serious functional disturbances of the general nervous system. The symptoms disappeared when the impacted tooth was extracted.—(Münchener Medizinische Wochenschrift, August 7, 1925, p. 1336.)

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S. Cuendet insists that the essential therapeutic indication in perforated ulcers of the stomach is immediate operation, and that all discussion of this subject is idle. Perforated ulcers of the stomach and duodenum may occur at all ages, from birth to extreme old age. The cardinal symptoms are sudden, acute pain, and muscular resistance in the epigastric region. The period of remission which follows the period of shock and precedes that of peritonitis must be disregarded so far as postponement of operative interference is concerned; operation is called for as urgently as for any other abdominal emergency. As regards operative technique, the simpler the operation the better: suture of the perforation can nearly always be done; gastro-enterotomy is indicated when the ulcer is situated close to the pylorus, and particularly when the pyloro-duodenal passage has been narrowed by the suturing of the perforation. Resection should be reserved for exceptional cases.—(Revue Médicale de la Suisse Romande, September 25, 1925, p. 672.)

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Preparations, Inventions, Etc.

SILVALUX ELECTRIC LAMPS.

(London: Siemens and English Electric Lamp Co., Ltd., 38-39 Upper Thames Street, E.C.4.)

Silvalux lamps are designed to produce a well-diffused illumination without the aid of reflectors; they are similar in construction to

the usual type of gas-filled lamp, with the exception that they have 2-ply glass bulbs, an inner lining of clear glass, and an outer easing of white opal glass. This outer bulb screens the brilliancy of the filament from the eyes, yet is of low absorption value. The lamps do not collect dust unduly and are easily cleaned, so that they are very suitable for hospitals, laboratories, etc., as well as for the home. We advise those of our readers who are interested in agreeable and economical lighting (and all medical men should

be—both in their own interests and those of their patients) to apply for further particulars.

CAPROKOL.

(London: British Drug Houses, Ltd., 16-30 Graham Street, City Road, N.1.)

Caprokol (hexyl-resorcinol) is a new synthetic preparation which has a strongly antiseptic action on the urinary organs and tract. It is non-toxic in therapeutic doses, and is stated to possess more than forty-five times the germicidal power of phenol, and 150 times that of its parent substance resorcinol. Prolonged administration of large repeated doses to animals and to man apparently results in no injury to the kidney, and in no irritation to the urinary tract. The preparation is best administered in olive oil solution, and it is sold as soluble, flexible gelatin capsules containing 0·15 gram caprokol in a 25 per cent. solution in olive oil, the dose being from two to four capsules thrice daily. For children it is supplied as a 2½ per cent. solution in olive oil, in bottles.

STAPHYLOCOCCUS ACNE FILTRATE.

(Leeds: Messrs. Reynolds and Branson, Ltd., 13 Briggate.)

Besredka has suggested that local immunity to staphylococcal infections is better established by supracutaneous application than by subcutaneous injections of vaccine, and he obtained good results in immunizing guinea-pigs to lethal doses of staphylococci by applying a dressing soaked with bacterial filtrate to the shaved skin. This preparation by Messrs. Reynolds and Branson is a filtrate of acne and staphylococcal organisms, to which has been added 1 per cent. carbolic and 20 per cent. glycerin. It is dabbed over the skin or applied to it as a wet dressing, and is useful in acne, furunculosis, eczema, and similar skin diseases.

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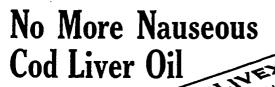
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APPOINTMENTS.

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- ARKLE, J. S., M.B., B.S.Durh., F.R.C.S.Ed., appointed Honorary Ophthalmic Surgeon, Durham County Hospital, Durham.
- BIRD, Elizabeth, M.B., Ch.B.Glas., appointed Radiologist to Salford Royal Hospital.
- BRENTNALL, C. Philip. M.C., M.B., Ch.B.Liverp., appointed Honorary Assistant Surgeon, St. Mary's Hospitals, Manchester, and Honorary Assistant Gynacological Surgeon, Northern Hospltal, Manchester.
- BROUGH, A. Lothian, M.B., Ch.B., Glas., appointed District Medical Officer to Salford Royal Hospital.
- BUTT, E. S., L.D.S., appointed School Dentist for Cheshire.
- BYRNE. Austin W., M.B., B.Ch., D.P.H. (Captain R.A.M.C. (ret.)), appointed Expert Adviser in Public Health and Tropical Medicine to the Government of Egypt at Calro.
- COBB, J. H., M.B., B.S., F.R.C.S., appointed Surgeon to the Children's Hospital, Sherfield.
- COOK. Frank, B.Sc., M.B., B.S., F.R.C.S., appointed Surgeon to Outpatients, Chelsea Hospital for Women.
- CROOKS, Fredk., M.Ch., F.R.C.S.Ed., appointed Visiting Orthopædic Surgeon to the Bagthorpe Infirmary, Nottingham.
- DARWENT, C. T., L.R.C.P. & S.Edin., L.R.F.P.S. Glasg., appointed Assistant Medical Officer to the Dundee Education Authority.
- DUNSTAN, C. H., M.B., Ch.M.Sydney, appointed House Physician to Paddington Green Children's Hospital.
- EARL, C. J. C., M.R.C.P., L.R.C.S.I., appointed Medical Registrar to Salford Royal Hospital.
- GEORGE, A. W., M.D., C.M., appointed Resident Medical Superintendent, Norwood Sanatorium, Beckenham Park, Kent.
- GIBSON, W., M.B., Ch.B., appointed Admiralty Surgeon and Agent for Old Kilpatrick.
- GLENNIE, J. A. R., M.B., C.M. Abard., appointed one of the Medical Referees under the Workmen's Compensation Act for the Districts of the Camelford, Holsworthy, and Launceston County Courts.
- GLUCK, Bernard, B.A., M.B., Ch.B. Dub., appointed Ophthalmic House-Surgeon, Cardiff Royal Infirmary.
- HARDIE, David, M.B., Ch.B.Glas., appointed Ophthalmic Surgeon to the Keighley Victoria Hospital.

- HERD, S. B., M.D., Ch.B.Liverp., appointed Additional Honorary Assistant Gynacological and Obstetrical Surgeon to Royal Infirmary, Liverpool.
- HUSBANDS, R. G. W., M.B., B.S. Lond., appointed Honorary Physician to the Taunton and Somerset Hospital.
- KIRK, Miss F. S., M.B., Ch.B.Glasg, D.P.H., appointed to the combined post of Demonstrator in Pathology in the University of Sheffield, and Assistant Pathologist to the Jessop and Children's Hospitals.
- MncADAM, William, M.A., M.D., M.R.C.P., appointed Honorary Assistant Physician to the Leeds General Infirmary.
- MENZIES, F. N. Kay, M.B., Ch.B., F.R.C.P.Edin., D.P.H., appointed Medical Officer of Health and School Medical Officer to the London County Council.
- MUNDELL, F. G., M.B., B.S.Durh., appointed House Surgeon to Paddington Green Children's Hospital.
- NUTTALL, H. C. W., F.R.C.S.Eng., F.R.C.S.Edin., appointed Honorary Assistant Surgeon to Royal Infirmary, Liverpool.
- OLDHAM, J. Bagot, M.B., Ch.B., Liverp., F.R.G.S., appointed Honotary Assistant Surgeon, David Lewis Northern Hospital, Liverpool.
- PARRY, C. P., M.D., appointed Medical Referce under the Workmen's Compensation Act, 1906, for the districts of Aberayron, Cardigan, Carmarthen, Llandila, Fawr, and Ammanlord: Lampeter, Llandovery, Llanelly, and Newcastle-in-Emlyn County Courts (Circuit No. 31), vice E. Evans, M.B., F.R.C.S., deceased.
- POLSON, C. J., M.B., Ch.B.Birm., appointed Demonstrator of Pathology, University of Manchester.
- SUGGIT, Bertram, M.B., Ch.B. Manch. and Leeds, D.P.H.Camb., appointed Medical Officer of Health for Letchworth Urban District, vice Dr. E. A. Fiddian, resigned.
- THOMAS, H. A., M.B., Ch.B.Liverp., appointed Assistant Medical Officer of Health and School Medical Officer for Denbighshire.
- TOOGOOD, F. S., M.D.Lond., appointed one of the Medical Referees under the Workmen's Compensation Act for the Districts of the Bodmin and Liskeard County Courts.
- WILKINSON, K. D., O.B.E., M.D. Birm., M.R.C.P., appointed Physician to the Birmingham General Hospital, vice J. W. Russell, M.D.Camb., deceased.
- WILSON, J. St. G., Ch.M., F.R.C.S. Eng., appointed Honorary Assistant Gynecological and Obstetrical Surgeon to Royal Infirmary, Liverpool.

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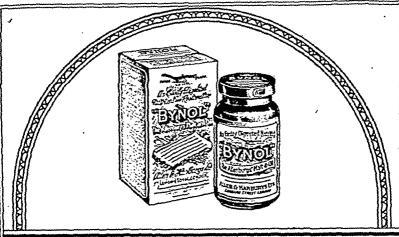
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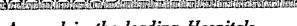
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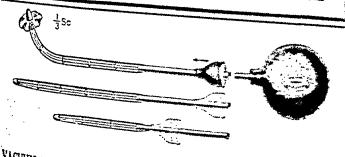
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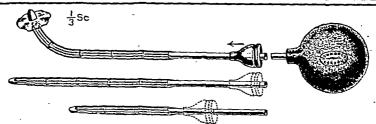
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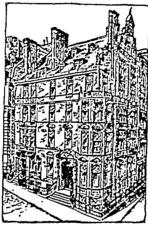
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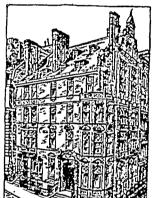
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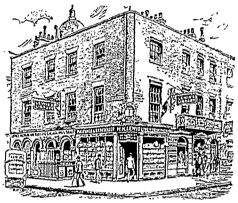
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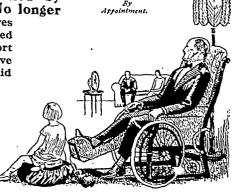
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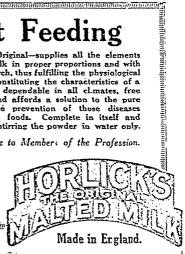
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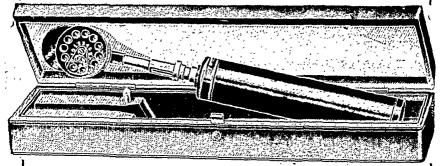
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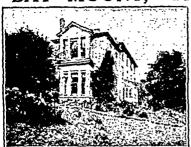
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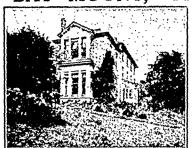
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IT is, moreover, of the utmost importance that prescribers should know whether they are prescribing the fresh gland or the desiccated substance. A tablet labelled on its content of fresh gland is obviously much weaker than one containing similar grainage of desiccated material. Inasmuch as one part of desiccated gland may be equivalent to 5, 6, 7. 8, or 10 parts of the fresh gland, medical men, when writing prescriptions, should carefully specify "sicc." or "recens"; otherwise, a patient may receive five to ten times the dose intended, or, alternatively, only one-tenth to one-fifth of such dose. (The contraction "ext." when applied to glands is of doubtful meaning and should not be employed.)

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P., D. & Co.'s preparations of the above are, as a rule, labelled so that the grainage represents the amount of desiccated material present. The principal exception to this rule is thyroid, which is labelled in terms of the fresh gland, the corresponding amount of desiccated substance being also shown. The dose of thyroid was originally based on the fresh gland, and as this dosage is still employed by the great majority of medical practitioners it has been retained in order to avoid the risk of overdosage.

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THEORY.

There is good reason for believing that certain intractable chronic skin conditions are of allergic nature. The desideratum, therefore, for their successful treatment is a physiologically standardized polyvalent serum whose albuminous content is reduced to a minimum. This is met by

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ECZEMA.—Male, aet. 65. Eight months' history. Improvement follows the first injection, and speedy cure. No return after three months.

Female, ast. 22. Disease has lasted all her life. Had four fortnightly injections. Improvement after first and disappearance of eczema after second.

PSORIASIS.—Male, aet. 22. Disease of universal distribution.

After six fortnightly injections, the body is almost entirely free.

Female, aet. 12. Five years' history. After three weeks' treatment, the eruption faded and has not (after about 11 years) recurred.

CONCLUSION.

The treatment, involving fortnightly injections and, as a rule, only a trifling local reaction, constitutes a distinct advance, on grounds of convenience and efficiency, on the old and uncertain remedies.

Prepared by

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SCIENTIFIC ORGANOTHERAPY.

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N ever-increasing number of Medical Practitioners write to say that they find "OPOCAPS" (British Organotherapy) to the formula set out below (and dispensed in each instance from freshly prepared materials) invaluable in the treatment of ANÆMIA, both Primary and Secondary, and that the product secures much more rapid and satisfactory results than from the exhibition of iron and arsenic.

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CONCLUSION.

The treatment, involving fortnightly injections and, as a rule, only a trifling local reaction, constitutes a distinct advance, on grounds of convenience and efficiency, on the old and uncertain remedies.

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A valuable aid to Medical skill.

AFTER professional skill has succeeded in carrying the patient over the crisis of a serious illness, "Wincarnis" will promote a speedy convalescence and a rapid return to health. After serious illnesses — particularly after Influenza — "Wincarnis" is especially valuable, as it can be easily administered, and is readily assimilated by even the most debilitated stomach.

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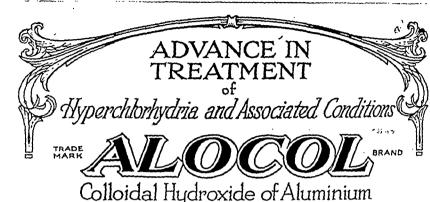


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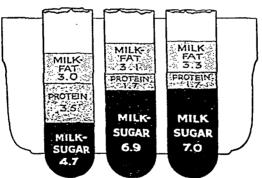
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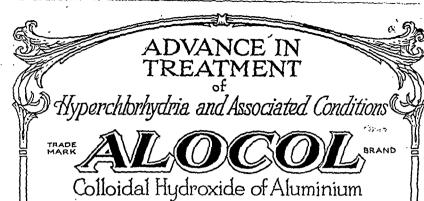


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Specially prepared for Hypodermic and Intramuscular Injection.

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Now issued in two strengths.

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A 10 per cent, standardised extract of infundibular substance as recommended by the Medical Research Council for obstetrical and general purposes, Given intramuscularly, Pithulin Obstetric is invaluable for promoting uterine contraction in the second stage of labour and after delivery; also for the prevention of post partum hamorrhage.

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MAY 1925

The Physiology of Wound Repair.

BY SIR ALMROTH WRIGHT, M.D., D.Sc., F.R.C.S.I., F.R.S.

Principal, Institute of Pathology and Research, St. Mary's Hospital; Professor of Experimental Pathology, University of London.

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Telephone Nos.: LANGHAM 2440, LANGHAM 2441 important element in the mechanism of defence wins support also from the fact that when the antitryptic power of the blood is increased, the growth of serophytic organisms in the serum is correspondingly restricted.

Further experiments showed how it is that serophytes manage, in spite of the antitryptic power of the serum, to grow out in it into colonies. staphylococci or streptococci are implanted into ordinary blood-plasma obtained by simple centrifugalization of the blood or into recalcified citrated plasma, and such implanted plasma is, before it clots, filled into a capillary tube or into a "slide cell," then each colony digests the fibrin which is in immediate contact with it, hollowing out for itself in this way a cavity in the clot. And as the colony grows the clear halo around it grows bigger and bigger. It is thus shown that serophytic microbes can, by a secretion of trypsin, overcome the antitryptic power of the serum and obtain for themselves nutriment by the digestion of the proteins of the blood fluids.

All that has been said above with regard to the *rôle* of the blood fluids in hindering or favouring infection may be summarized in the form of two general physiological principles:—

- (1) The natural uncorrupted blood fluids are competent to keep saprophytic microbes at bay and to preserve the wound against putrid infections, but these uncorrupted blood fluids will, when they collect in the wound, furnish a favourable nutrient medium for serophytic bacteria.
- (2) Additions of trypsin, such as are furnished by the disintegration of leucocytes, corrupt the wound discharges and convert these into an ideal cultivation medium for serophytic and sero-saprophytic organisms indiscriminately.

From these physiological generalizations emerge two

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invariable result shows that the staphylococcus and streptococcus grow better than any other microbes in the blood fluids and lymph. Further proof of this is obtained by attaching a small cupping apparatus—"lymph leech"—to the non-disinfected walls of a putrid septic wound There will—despite the fact that there will here have been implanted all manner of microbes—then be obtained in the fluid drawn into the belly of this lymph leech, a culture consisting entirely of serophytes, and often a pure cultivation of streptococcus

Leaving out of regard for the moment what further can be learned from this experiment, attention may be focused on two great general principles: first, on the principle that serophytic microbes, and only serophytic microbes, will be capable of growing in the clean and wholesome wound; secondly, on the principle that of all the organisms found in the putrid wound only the serophytic organisms, and in particular the streptococcus, will be capable of invading the blood-stream. That none of the saprophytic organisms can invade the blood-stream, will, of course, hold good only so long as the blood fluids remain "uncorrupted."

For the explanation of these facts that only serophytes can grow in the wholesome wound, and that only these can invade the blood-stream, one must look primarily to the antitryptic power of the blood fluids. It has long been known, but it has not been appreciated, in connection with resistance to bacterial infection, that the blood fluids have the power of neutralizing digestive ferments; that, put more briefly, they have an antitryptic power.

The application of these facts to the physiology of the wound appears when they are related to the facts that leucocytes furnish a tryptic ferment, and that leucocytes which have ingested microbes furnish this in more abundance, and that this ferment is discharged when the leucocytes disintegrate or are artificially broken down. The view that antitryptic power is an important element in the mechanism of defence wins support also from the fact that when the antitryptic power of the blood is increased, the growth of serophytic organisms in the serum is correspondingly restricted.

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PHYSIOLOGY OF WOUND REPAIR

stained. It will now be seen, on examination under the microscope, that the area of the slide upon which the blood was deposited is occupied by an almost continuous sheet of leucocytes which have emigrated from the clot and have flattened themselves upon the glass in every condition of active movement.

As this emigration takes place upon almost every kind of surface, the influence of chemotactic stimuli cannot here come into operation; and the obvious inference is that in this experiment nothing more has been done than to provide the leucocytes with what they require for locomotion-fixed points to which they can make fast and then haul upon. Such points of attachment are provided by the strands of fibrin in the blood clot. To these fibrin strands the leucocytes will, in obedience to their stereotropism, attach themselves, and along these they will find their way to the surface of the slide. Arrived there, they will flatten themselves out so as to come in contact with a maximum area of solid surface; and then, finding at their disposition . everywhere on the slide and the under-face of the clot firm points of attachment, they will in the exercise of their propensity for spontaneous movement haul themselves about from place to place.

There are two other points which should be appreciated. The less important may, as directly linking itself on here, be taken first. Inspection shows that practically all the leucocytes found in these emigration films are polynuclear. The polynuclear leucocyte has in the matter of locomotion two advantages over the mononuclear. It can, owing to the subdivision of its nucleus, make its way out through the capillary wall. And, again—and it is this that comes into consideration here—it can travel much faster.

The second and more important point relates to the behaviour of leucocytes freely suspended in fluid. These, because they have no fixed points to anchor themselves to and haul upon, cannot transport themselves from place to place. In a moving fluid they are

broad therapeutical principles for the treatment of wounds:—

- (1) Where there is a putrid and unwholesome wound—in other words, a wound with sero-saprophytic infection—the proper treatment will be to flush it with fresh wholesome blood fluids.
- (2) Where there is a clean and wholesome wound—in other words, a wound with a purely serophytic infection—fresh and active leucocytes must be brought into the wound, and these must be provided with the conditions which are essential to their efficient functioning. To that end the physiology of the leucocyte must be carefully studied.

THE PHYSIOLOGY OF THE LEUCOCYTE.

The most important of the physiological properties of the leucocyte are: (a) its very active spontaneous motility; (b) its power of emigrating from the capillaries; (c) its stereotropism; (d) its chemotactic attractions and repulsions; (e) its power of ingesting and destroying by intracellular digestion microbes that have been prepared for phagocytosis and digestion by the opsonic and protryptic 1 action of the serum; and (f) its power of excreting under appropriate stimuli bactericidal substances which kill microbes of various species exposed to their chemical influence. Further, there comes into consideration, in connection with the leucocyte, the fact that it sets free trypsin when it disintegrates.

The bald proposition that the leucocyte is motile fails to bring before the mind any adequate conception of its activity. How far the current conception falls below actuality can be realized by proceeding as follows:—

A drop of blood is placed on a glass slide, is allowed to clot, and is then incubated in a moist chamber at blood temperature for twenty to thirty minutes. The clot is now shaken off, the bose red corpuscles are washed off under a tap, and the drop fixed and

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This relates to the fact that leucocytes, and more particularly leucocytes which have ingested bacteria, contain within them a store of trypsin; and that is set free when the leucocyte dies and is broken down artificially. The fact that the disintegrating leucocyte sets free trypsin is of general pathological significance. In relation to wounds, the setting free of trypsin from the leucocyte prepares the way for sero-saprophytic infections: for it corrupts the discharges, and converts these into a favourable nutrient medium for all microbes without distinction. Again, the setting free of trypsin is responsible for the erosion which is seen at the mouth of every discharging sinus and on every wound surface which is not re-dressed at very frequent intervals. To the action of trypsin is due also that erosion in the depth of the wound which leads, when large vessels course in the neighbourhood, to secondary hæmorrhage. Lastly, the separation of sloughs is in every case the work of trypsin set free from leucocytes.

THE WHOLESOME GRANULATING WOUND.

This is a wound in which there are antitryptic blood fluids, and in consonance with this a purely scrophytic infection. Further, upon the encasing walls there is a protective coating of granulation tissue, and superficial to this a film of leucocytes which is being constantly reinforced by fresh emigration from the capillaries in the vascular granulation tissue. The evolution of events which occur in this type of wound has been studied by Dr. A. Fleming.

Impression cultures were made by applying a cover-glass to the surface of the wound and then transferring this directly or after desiccation to an implanted or unimplanted surface of an agar plate. When transferred to the agar without delay the leucocytes of the discharge come into operation living, and the culture obtained may be designated a "bio-pyo-culture." When, before implantation on the agar, the leucocytes are allowed to desiccate, the culture obtained may be called a "necro-pyo-culture."

For the observations in question the point of departure selected

swept along by the current; in a quiescent fluid they sink to the bottom. That leucocytes cannot transport themselves in pursuit of microbes through a fluid medium is of vital importance in the treatment of wounds, for it teaches that a wound which contains any appreciable amount of effusion is a wound which cannot be sterilized by leucocytic agency. Given an effusion of serum, serophytic microbes will always find opportunity for cultivating themselves out of reach of the leucocytes.

The fact that leucocytic movements can be influenced and directed by chemotactic stimuli must next be taken into consideration. When comparative experiments are made, imposing blood on the one hand on a clean glass surface, and on the other on surfaces which have been coated with microbic suspensions, it is found that leucocytes emigrate in larger numbers on to surfaces which are lightly implanted with bacteria, and that they are repelled from heavily implanted surfaces.

There is still one further fact about the leucocytes of which cognizance must be taken. This is that leucocytes can kill microbes, not only by the familiar way of phagocytosis and intracellular digestion, but also quite apart from any ingestion by setting free bactericidal elements which directly attack the microbes. This conclusion is forced upon us when, instead of a leucocyte-covered lath bathed in serum, one which has been thoroughly washed in physiological salt solution is imposed on the implanted agar. There is then precisely the same area of sterilization as before. Now, as staphylococci and streptococci are never ingested except in the presence of serum, and as examination of the lath shows that in this case there is no appreciable phagocytosis, the inference is clear that leucocytes can kill not only by phagocytosis and intracellular digestion, but also by chemical attack exerted extracellularly.

One further and final point must receive attention,

by so doing convert this into a more favourable nutrient medium for all kinds of microbes. Important illustration of all these points has been furnished by Dr. A. Fleming in a paper on "The Action of Chemical and Physiological Antiseptics in the Septic Wound."²

Nor, again, can the cycle of events above described be influenced by the exhibition of vaccines. Vaccines cannot be of service when the leucocytes are unprovided with shelter and facilities for locomotion and the external conditions are such that the blood fluids must, by the setting free of leucocytic trypsin, very quickly be corrupted.

The proper principle when dealing with a wholesome wound is to close in order to sterilize, instead of using antiseptics with a view to closing. In connection with this therapeutic principle the following points may be emphasized:—

- (1) The procedure here enjoined is that which Nature herself employs. She extinguishes the wound infection only by closing the wound.
- (2) There is in the modus operandi of closure employed by Nature one outstanding defect. The epithelium grows in only very slowly from the edges of the wound. In consequence of this dilatory ingrowth the bacterial infection will in extensive wounds persist for indefinitely long periods, with the result that contracting scar tissue takes the place of the normal epithelial covering.
- (3) By artificial closure, whether by actual suture, by drawing together of the edges by strapping, or by skin grafting, the wound is promptly sealed, with the result that the bacterial infection is rapidly extinguished and the formation of scar tissue is avoided.

References.

¹ S. R. Douglas, Proc. Roy. Soc. Brit., 1916, vol. lxxxix.

² Brit. Jour. of Surgery, vol. vii, no. 25, 1919.

was the moment after the wound had been thoroughly syringed out with physiological salt solution. The first fact brought to light was that syringing is a procedure which carries away from the surface of the wound all the larger formed elements, in other words, all the leucocytes; but leaves behind many of the smaller elements—the microbes. When a cover-glass is applied to the surface of a syringed wound and is then fixed and stained, and examined by the microscope, leucocytes are found to be absent and only microbes are seen. And when a cover-glass from the wound is imposed upon an agar plate and incubated, the implanted microbes grow out in full number into colonies.

A cover-glass applied to the surface of the wound three to eight hours afterwards gives a very different picture. Large numbers of freshly emigrated leucocytes are found and interspersed among these a few scattered microbes; and when bio-pyo-cultures are made, in other words, when the leucocytes of the pus are placed in favourable external conditions, they attack and kill the microbes

and complete sterilization is effected.

Pyo-impressions made later show that the pus is, as it lies in the wound, gradually losing its antibacterial power; and at the expiration of twenty-four hours there is on the surface of the wound a rapidly increasing population of microbes.

The study of pyo-impression cultures brings out the subsidiary but very important facts that so long as the wound remains open the infection is never extinguished, and that washing and dressing impose only a temporary restriction upon bacterial growth, and that the infection begins again to make progress so soon as the leucocytes succumb to the unfavourable external conditions encountered in the wound.

This cycle of events here described is uninfluenced by any application of antiseptics. In point of fact the effect of antiseptics is in general pernicious. They may by their negative chemotactic action hinder the emigration of leucocytes. They may coagulate the albumen of the tissue elements and of the discharges, forming a glaze over the walls of the wound which will mechanically confine the microbes and prevent also the emigration of leucocytes and the outflow of wholesome fluids into the wound. Again, antiseptics may by exerting an irritant action bring into the wound an excessive quantity of serum. Or again, they may reduce the antitryptic power of the blood fluids, and

disease is generally accepted in the case of those diseases of which the specific cause is known.

For example, in diphtheria the toxins produced by the diphtheria bacilli are undoubtedly the cause of the symptom complex associated with the disease. symptoms of the common acute infectious diseases, such as scarlet fever, measles, etc., are no doubt due to circulating toxins. In the case of septicæmia and pyæmia, the same holds good. In the enteric group of fevers, in pneumonia, plague, and a large number of specific diseases the causal organism can at some stage of the disease be found in the blood stream, and the respective symptom complex is undoubtedly caused by the toxic substances generated by the bacterial In tuberculosis, bacillary dysentery, the general constitutional symptoms are due to absorbed toxins. Examples of toxic manifestations in protozoal diseases are furnished by malaria, syphilis, amæbic dysentery, trypanosomiasis, etc.

Diseases where the proof of a specific causal organism is less clearly demonstrable include by far the largest group of diseases, and most of the common ailments come under this category. For example:—

Chronic rheumatic conditions, diabetes, hyperpiesia and arterial disease, various forms of secondary anemia and possibly pernicious anemia, many skin diseases, retinitis and many pathological eye conditions, asthma, gout, exophthalmic goitre, colitis, appendicitis, gastric and duodenal ulcer, some diseases of the central nervous system, such as combined sclerosis.

In most of these conditions careful search will reveal some definite toxic factor, and in many cases a definite focus of bacterial sepsis can be found. In this country the importance of the toxic factor in the causation of common diseases, such as those specified, is becoming more and more recognized and appreciated. In my

The Toxic Factor in Disease with Special Reference to Chronic Rheumatic Conditions and Diabetes.

By SIR WILLIAM WILLCOX, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P.

Medical Adviser to the Home Office; Physician to St. Mary's Hospital, etc.

ISEASE is a symptom complex which is abnormal as regards health or true physiological conditions. It may be regarded in many aspects; for example:—

- (1) The effects of disease on the various bodily organs, such as the heart, lungs, alimentary tract, kidneys, eye, nervous system.
- (2) The associated effects of disease on the endocrine glands.
- (3) The effects of disease in relation to possible vitamin deficiency in the dietary.
 - (4) The toxic factor.

Thus, exophthalmic goitre may be regarded as a disease due to hyperfunction of the thyroid gland, or as a disease of the nervous system, or as an abnormal disturbance of the circulatory system, or from the point of view of its ocular disturbance. Lastly, exophthalmic goitre may be regarded as a disease due to some toxic factor acting on the thyroid gland, whereby its function is disturbed, and as a consequence of this the other symptoms result.

The Toxic Factor as a cause of the symptoms of

disease is generally accepted in the case of those diseases of which the specific cause is known.

For example, in diphtheria the toxins produced by the diphtheria bacilli are undoubtedly the cause of the symptom complex associated with the disease. symptoms of the common acute infectious diseases, such as scarlet fever, measles, etc., are no doubt due to circulating toxins. In the case of septicæmia and pyæmia, the same holds good. In the enteric group of fevers; in pneumonia, plague, and a large number of specific diseases the causal organism can at some stage of the disease be found in the blood stream, and the respective symptom complex is undoubtedly caused by the toxic substances generated by the bacterial infection. In tuberculosis, bacillary dysentery, the general constitutional symptoms are due to absorbed toxins. Examples of toxic manifestations in protozoal diseases are furnished by malaria, syphilis, amæbic dysentery, trypanosomiasis, etc.

Diseases where the proof of a specific causal organism is less clearly demonstrable include by far the largest group of diseases, and most of the common ailments come under this category. For example:—

Chronic rheumatic conditions, diabetes, hyperpiesia and arterial disease, various forms of secondary anæmia and possibly pernicious anæmia, many skin diseases, retinitis and many pathological eye conditions, asthma, gout, exophthalmic goitre, colitis, appendicitis, gastric and duodenal ulcer, some diseases of the central nervous system, such as combined sclerosis.

In most of these conditions careful search will reveal some definite toxic factor, and in many cases a definite focus of bacterial sepsis can be found. In this country the importance of the toxic factor in the causation of common diseases, such as those specified, is becoming more and more recognized and appreciated. In my

judgment the toxic factor in these conditions is much the most important, since its appreciation and recognition leads one to the cause of the disease and directs one along the lines of treatment which are most likely to be followed by beneficial results.

It is interesting in this respect to compare British with Continental medicine. From a personal study of medicine as practised on the Continent, I have no hesitation in asserting that the toxic factor in the common group of diseases mentioned is regarded with very much greater importance in this country. Almroth Wright has been a pioneer of clinical bacteriology in this country, and it is largely due to his work that the importance of the toxic factor in disease has gained a pre-eminence in British medicine. value of vaccine therapy in the treatment of disease is a matter on which opinions may differ, but all must admit that the toxic factor in the causation of disease is of supreme importance. There is strong evidence that the lead given by British medicine in the realization of the great etiological importance of focal sepsis as a cause of many of the common and less understood diseases is being appreciated and followed in other countries.

Focal Sepsis.—By this is meant a part of the body in which a definite bacterial infection is present and which acts as a distributing centre for toxins. Focal sepsis may act as a cause of disease by virtue of the toxins being carried to other parts of the body and setting up a diseased condition by their direct action.

Symbiosis may have an important bearing in determining the type of disease resulting from focal sepsis. Thus the absorption of toxins from an infection of one kind of organism may so lower the resistance of the body that another organism may set up disease. The streptococcal toxemia of dental sepsis may lead indirectly to the recurrence of staphylococcal infections,

TOXIC FACTOR IN DISEASE

such as boils or carbuncles, and removal of the streptococcal focus is often followed by a cure of the recurrent staphylococcal infection. Similarly, in a person with latent malaria, an acute bacterial infection such as influenza will set up acute malaria as a symbiotic complication.

Sensitization to the toxins from focal sepsis is a most important factor in the causation of disease. In this condition the constant stream of toxins flowing into the blood stream so lowers the resistance that disease of a particular type results. Examples of this are to be seen in certain erythemata and recurring urticarial eruptions, in asthma, gout, and angio-neurotic cedema. These conditions are sometimes due to the toxic effects of focal sepsis coupled with a sensitized condition. is often found in such cases that great hypersensitization exists to a vaccine prepared from the specific focus, and in cases of this type vaccine therapy if used at all must be applied with the utmost caution, the initial doses being extremely small. In some cases of gout the sensitization may be so great as to render vaccine therapy impossible. Where sensitization exists as a result of focal sepsis, the adequate treatment or removal of the focus of infection is not infrequently followed by marked improvement or cure of the disease present.

Sensitization to bacterial toxins is a subject which has not received the attention which its importance deserves. I have found in cases of nephritis following streptococcal infections of dental and tonsillar origin, that a condition of great sensitization to the streptococcal toxin has been present, most minute doses of a vaccine being followed by severe reactions. The same sensitization has been observed in cases under my care suffering from retinal vascular lesions of toxic origin. It seems likely that the occurrence of certain cases of nephritis, and of toxic eye conditions and probably many other diseases of obscure causation, will be

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TOXIC FACTOR IN DISEASE

intestinal lesions and colitis are common accompaniments of arthritis and other forms of chronic rheumatism.

In every case of "chronic rheumatism" careful search should be made for a focus of infection. Dental sepsis is the commonest cause, and a clinical examination of the teeth should be supplemented by careful radiographic examination. The tonsils, naso-pharynx, maxillary antra and accessory sinuses should be carefully examined. Bacteriological examinations of the stools and colon washings and of the urine should be carried out. Evidence of an infection with streptococci of the Viridans group is almost always found.

The most important part of the treatment of chronic rheumatic conditions consists in the treatment of the causal infection. Infected teeth should be removed, and this is most essential in those showing apical infection. Tonsils if badly infected should be enucleated under proper surgical safeguards, unless their condition is such that medical treatment is likely to be followed by removal of the focus of infection. Infected antra will require surgical treatment. Where evidence of colon infection is present, either from clinical or bacteriological examination, colon lavage is of value. The presence of colon toxemia is usually shown by a marked excess of indican in the urine, and it is most important that this test should be applied in cases of chronic rheumatism. Where the rheumatic condition is of long standing, vaccine treatment is advisable, but only when the focal sepsis has been adequately dealt with. The best results are obtained with a combined vaccine made from the several foci of infection.

It is important to remember that in most cases where a primary infection occurs in the teeth or naso-pharynx, the colon becomes secondarily infected. It is therefore generally advisable that pathogenic streptococci from the colon should accompany the streptococci from the

explained by the sensitization set up by the toxins of some focus of sepsis.

Examples of Idiopathic Sensitization to certain proteins are well known to occur in hay fever, in anaphylaxis following injections of horse serum or other animal sera, and in certain of the toxic idiopathies of food proteins described by Freeman and others.

Chronic Rheumatic Conditions of Non-Specific Origin include the various forms of fibrositis, such as inflammatory conditions of aponeuroses (muscular rheumatism), tendons, and ligaments, panniculitis, bursitis, finger pads, and Heberdon's nodes; the various forms of arthritis, perineuritis occurring as sciatica, brachial neuritis, etc., are common examples.

"Chronic Rheumatism" is probably the commonest disease at the present day, and it heads the list of incapacitating diseases as judged by the National Health Insurance statistics. The most important etiological factor in chronic rheumatic conditions is in my opinion the toxic factor. In almost all cases careful search will reveal some focus of infection. In most cases the organisms present in the focus of infection will be streptococci usually belonging to the Viridans group. It cannot be too strongly appreciated that chronic rheumatic conditions are not a primary disease but simply one group of manifestations of a toxemia usually of streptococcal origin.

Just as in "acute rheumatism in children," the joint manifestations are only one group of a symptom complex comprising skin rashes, subcutaneous lesions, cardiac and pericardial lesions, tonsillar, pleural or pneumonic lesions, affections of the nervous system such as chorea, so in the "chronic rheumatic conditions" described many other evidences of a generalized toxemia are invariably to be found. The general malaise and debility, the secondary anæmia, the general pains due to irritation of the peripheral nerves, gastro-

TOXIC FACTOR IN DISEASE

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teeth or tonsils. A convenient strength of vaccine is fifty millions combined streptococci per c.cm., but in cases where there are symptoms of severe toxemia a strength much less than this, e.g., from one to five millions per c.cm., should be used at first. Overdosage with vaccine is to be carefully avoided. It is usually advisable to begin with a dose of 1 minim and to increase the dose by 1 minim at each inoculation, the intervals between the doses being about one week. Later on, as the doses become larger, fortnightly or longer intervals between the doses may be advisable. The treatment of the focal sepsis and vaccine therapy should be accompanied by medicinal treatment.

In my hospital practice the routine treatment in arthritis is as follows:—

Guaiacol carbonate grains x three times daily, and to this a few grains of aceto-salicylic acid are added with each dose if much pain be present.

Also tincture of iodine (French Pharmacopæia, without potassium iodide) m. iv, in a wineglassful of milk or water, three times daily, after meals, is given, the dose being increased to 6 or 8 minims.

Local treatment of the affected parts by hot applications such as iodine poultices, radiant heat, ionization or diathermy is advisable.

In chronic cases of arthritis the rubbing in of an ointment composed of Scott's dressing diluted with two or three parts of landlin is very helpful, and this may be applied night and morning, the joint being covered by a bandage.

The treatment of arthritis and chronic rheumatic conditions on the above lines is in most cases followed by marked benefit, and if cases are seen in a stage not too far advanced a complete clearing up of the diseased condition commonly results.

Infection as a Cause of Diabetes.—It is well known that severe glycosuria may result from the toxemia of acute infections; thus on several occasions I have seen carbuncle associated with glycosuria, and after successful surgical treatment of the carbuncle the glycosuria has disappeared and the assimilation limit for carbohydrate become normal.

In THE PRACTITIONER for November, 1921, I described

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a case of very severe diabetes, following successive infections of measles, scarlet fever, and epidemic catarrhal jaundice, occurring within a period of six months. Numerous other examples could be cited. In a paper read before the Royal Society of Medicine in 1923 ("Dental Sepsis as an Ætiological Factor in Disease of other Organs"), I quoted the occurrence of glycosuria as 12 per cent. in 100 consecutive cases of definite dental sepsis seen by me, in which rheumatic cases were excluded. It is an established fact that the internal secretory cells in the islands of Langerhans are susceptible to toxic influences, and, in every case of diabetes, careful search should be made for chronic infections resulting from focal sepsis.

Any focal sepsis should be dealt with at this stage by appropriate surgical measures. After the preliminary treatment of the diabetes has been successfully carried out and the patient is free from glycosuria and acetonuria, there is no risk in the administration of an anæsthetic for the surgical treatment of the focal sepsis. Local anæsthesia, or general anæsthesia with gas, or gas and oxygen, or ether, may be given. During the past three years on numerous occasions gas and open and closed ether have been administered to diabetic patients under my care, and there have been no untoward symptoms of any kind. Chloroform should not be administered to diabetic patients owing to its toxic effects.

The removal of focal sepsis is usually followed by an immediate transient fall in the carbohydrate tolerance, and glycosuria frequently recurs. This is due not to the effect of the anæsthetic but to the autoinoculation resulting from the operation. After the removal of focal sepsis it has been my experience that in a few days the carbohydrate tolerance usually rises to a figure considerably higher than that before operation. In some cases the rise has been so pronounced that the

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Effect of Chronic Sepsis upon the Central Nervous System.

BY HENRY A. COTTON, M.D., A.M.

Medical Director, New Jersey State Hospital at Trenton; Lecturer in Psychopathology, Princeton University; Corresponding Member of British Medico-Psychological Association.

In a recent survey made of the New York State hospital service it was shown that the recovery rate had steadily decreased in the last ten years and the death rate had increased. In spite of this evidence of the failure of methods based upon the erroneous doctrine that the mind was disordered, but the brain normal, the psychiatrists still in the main support this doctrine and refuse to give any consideration to the physical condition of the patient.

As the mind is the function of the brain, it is difficult to see how psychiatrists can still maintain that mental disorders are diseases of the mind alone and that the brain is normal. We maintain that we have demonstrated beyond a question of a doubt, in our investigations in the last six years, at the State Hospital, Trenton, that the mental symptoms are the direct result of the anatomical lesions of the brain tissue, that the mental symptoms are the result, primarily, of physical disturbances, and that the treatment of mental disorders is dependent upon the elimination of factors causing disorders of the brain tissue.

No one will deny that the physical disorders of patients in hospitals for the insane or asylums have been woefully neglected in the last twenty-five years, and perhaps for a longer time. In most institutions, whether called asylums or hospitals, the care of patients

carbohydrate tolerance has risen to a figure approaching the normal and further treatment has been unnecessary.

In cases of focal sepsis of long duration, it is probable that great damage to the pancreas has already occurred, so that great recovery in the carbohydrate tolerance cannot be expected. The removal of the focal infection is, however, a safeguard against further pancreatic damage, and is almost always followed by some rise in the carbohydrate tolerance.

In conclusion, it cannot be too strongly emphasized that in chronic rheumatic conditions and in diabetes the presence of a focus of infection whether in teeth, nasopharynx, colon or urinary tract, is the most

important etiological factor.

The principle underlying the treatment of these conditions should be based on the removal or minimizing of the causal toxemia. Other methods of treatment, such as local treatment in rheumatic conditions, dietetic and insulin treatment in diabetes, are of great importance and should supplement that of the causal toxemia.

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is mostly custodial. Very few state institutions have the proper facilities for determining the presence of physical disease, and no facilities for the proper treatment of these conditions.

It can be shown further that this deplorable condition is the direct result of the erroneous doctrine regarding the cause and nature of mental disorders, especially of the so-called functional type. It is our purpose in this paper to briefly submit the proof of the erroneous doctrine outlined above and submit evidence of the physical basis for the so-called functional psychoses.

SOURCE AND NATURE OF CHRONIC SEPSIS.

It has taken many years for physicians to understand the rôle of chronic sepsis in the causation of many diseases in which the etiology was obscure or unknown. The relation of chronic sepsis to arthritis, neuritis, heart and kidney lesions, and other diseases has been definitely established. Although William Hunter, as early as 1900, demonstrated the pernicious influence of oral sepsis in certain diseases, it was not until 1912 that Billings, Rosenow, Hastings, and others contributed valuable data to this subject. Psychiatry then had to wait for the development of the doctrine of the relation of chronic sepsis to systemic disorders before these principles could be applied to mental disorders.

During the last six years, or since 1918, we have been concerned with the *rôle* of chronic sepsis and its resulting toxemia in relation to the so-called functional disorders. The source of chronic sepsis has been determined by many investigators to be found in foci of infection in the teeth, tonsils, gastro-intestinal tract, and genito-urinary system. It should not be difficult to determine the presence of infection in these areas, for it can be accurately determined by means of the X-ray and advanced laboratory methods.

Our investigations have shown, unfortunately, that

CHRONIC SEPSIS

the mental symptoms bear no relation to the source of infection, and that only by very exhaustive examination can these foci of infection be detected. It is useless to eliminate foci of infection, say, in the teeth or tonsils, leaving other foci in the body, and expect to get results. It is only by persistence and thorough examination that all sources of infection can be eliminated. There may be other sources of infection in other organs which have as yet not been demonstrated.

CEREBRAL TOXAMIA RESULTING FROM CHRONIC SEPSIS.

In studying the relation of chronic sepsis to the central nervous system it has been demonstrated that the organisms are not found in the brain or spinal cord. In repeated cultures of the spinal fluid we have failed to isolate any of these infecting organisms. The effect upon the central nervous system is produced by the toxins taken up by the general circulation and carried to the central nervous system. These toxins, while they have not been definitely isolated, are produced by the infecting organisms, such as streptococci and colon bacilli. The diphtheroid group has been studied extensively in England by the late Ford Robertson, of Edinburgh, and he ascribed much of the toxemia to these organisms. It is true that we have isolated the diphtheroid bacilli, as described by Ford Robertson, in many of our cases, but we have not had enough experience to show definitely that these organisms are as important as the streptococcus and colon bacillus.

With the presence of such numerous foci of infection in the body it is only logical to assume that toxins are produced by these organisms, that they are picked up by the blood stream, or maybe the lymphatics, and carried to the central nervous system. Assuming this to be a fact it is not difficult then to understand that the effect of such toxins on the brain tissue would produce mental symptoms. Psychiatrists already re-

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is another very important toxic factor which has been emphasized for years. That is intestinal toxæmia due to chronic intestinal stasis located in the colon. Our investigations would lead us to believe that there are two forms of toxæmia resulting from intestinal stasis. One type is the result of infectious processes in the walls of the colon. The other form of intestinal stasis is due to generation of toxic products from the retained residue of the digestive processes. In many cases this latter form of intestinal toxæmia, without the presence of bacterial toxins, may cause serious mental disturbances. In a large number of cases both forms of toxæmia may exist.

For five years we resected the colon in some three hundred cases of mental disorder and carefully studied the lesions of the colon in such cases. A number of these colons were also studied by Dr. James Ewing, of Cornell University, who gave a very illuminating report of his findings in a contribution by Dr. John W. Draper, published in the "American Journal of the Medical Sciences," September, 1922, No. 3, vol. clxiv, p. 322. In all, seventy-five patients in various stages of acute and chronic mental disorder recovered permanently as a result of resection of the colon. The mortality, however, was 30 per cent., which was rather discouraging.

Because of the high mortality rate of colectomy in our hands we have adopted Lane's original method of releasing the acquired bands which secure and obstruct the colon; this method was fully described in The Practitioner for January, 1923. During the last eighteen months this method has afforded very gratifying results. In some cases there was immediate relief of the mental symptoms, often within two weeks after operation. In other cases, where the intestinal stasis had been of long duration, and ulceration and infection had occurred in the wall of the intestines, release of adhesions did not produce the effects as seen in the first group. This

cognize a toxic psychosis, so it is no new doctrine to proclaim that the so-called functional psychoses are caused by cerebral toxæmia. In fact, it agrees with all our known knowledge of other psychoses. Alcoholic insanity in all its forms is the direct result of alcoholic poisoning. And in general paralysis of the insane, or paresis, we know definitely that the mental disturbance is due to invasion of the meninges and cortex by the spirochete pallida. The etiology of this disease was disputed for many years, and the causes were considered mental until it was demonstrated by Alzheimer, Nissl, and others that paresis was an organic brain disease rather than a functional mental disorder. and arteriosclerotic brain disease we know that the mental symptoms are the direct result of lesions in the brain. One might reasonably ask then why it is that the so-called functional group should present an entirely different picture and mechanism from these other With these known facts before us it is difficult to see how one could assume that the profound dementia in terminal dementia præcox could exist with a perfectly normal brain structure. Alzheimer, Sir Frederick Mott, the present writer, and others have demonstrated that there are definite lesions in the brain tissue in these cases of chronic dementia or dementia præcox. The writer worked with Alzheimer in 1905-6 demonstrating fatty degeneration of the nerve cells of the cortex, also changes of the neurolgia in dementia præcox. The result of this work was published in the "Journal of Experimental Medicine," vol. 22, p. 4, 1915.

In spite of all the work that has been done on the physical side of the functional psychoses, the adherents of the psychogenic school still deny that the physical disturbances have any bearing on the etiology of the functional psychoses.

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infectious process must be treated by vaccines and serums before the toxemia can be eliminated, and in some cases a partial resection will be necessary.

Out of one hundred and sixty cases operated on for the release of adhesions without resecting the colon we are glad to report mental recovery in ninety-nine cases. The mortality rate is under 10 per cent. We have estimated that at least 50 per cent. of our patients suffering from various types of the so-called functional mental disorders have lesions in the colon which have to be corrected, so the importance of this recent work can easily be appreciated.

RESULTS IN DETOXICATION.

As further proof of the toxic nature of the so-called functional psychosis we would like to report the result of our work at the State Hospital, Trenton, for the last six years. Prior to 1918, the average recovery rate in this group was 38 per cent. for a period of ten years. This constituted the spontaneous recoveries and was largely confined to the group of manic depressive insanity, so-called. Since 1918, with a thorough detoxication of patients of this group by the elimination of all foci of chronic infection, the recovery rate has averaged 86 per cent. This rate is based upon the condition of the patients at the present time, and not merely upon their condition when they left the hospital. By means of a well-organized and efficient field service we have accurate reports by visits and letters from these discharged cases in the last six years, so that we can truthfully say that many of our patients now have been well for over six years.

This high recovery rate is significant when taken in connection with reports from other states where there has been a steady decrease in the recovery rate for the last six years, due, largely, to overcrowding in most state hospitals. Under the circumstances, the chances

CHRONIC SEPSIS

for spontaneous recovery are much lessened, and the death rate increased.

The number of patients successfully treated, which comprises this 86 per cent., is now over 1,600, of whom we have accurate reports on their present mental condition. Although there has been much criticism of our work by those who are unfamiliar with our methods, the accuracy of our statistics has not been disproven; in fact, our critics have not taken the trouble to visit the hospital and learn what we are doing. After six years' trial of these methods we are convinced that we have produced direct clinical evidence of toxemia in all the so-called functional psychoses.

We have not yet discussed the question of the mental diagnosis of these cases. In spite of Kraepelin's very important contribution to psychiatry, the question of mental diagnosis in many cases is still very difficult. So we have placed in the so-called functional group types of manic depressive insanity, dementia præcox, or adolescent insanity, paranoid conditions, and the psychoneuroses. While the clinical mental picture may be differentiated in most cases, the important fact established is that the etiological factor in the various types is the same.

We have not eliminated the rôle of heredity in predisposing these patients to mental disturbances in the presence of chronic sepsis and cerebral toxemia, but we are convinced that it should be placed in a subordinate rôle. The rôle of the mental factors we also recognize as important, but largely in precipitating the psychosis in the presence of chronic sepsis of long duration. These two factors have their value, but we are convinced that the fundamental etiological factor is cerebral toxemia, the result of chronic sepsis in other parts of the body.

OTHER NEUROLOGICAL CONDITIONS.

While we have confined our discussion in this article

infectious process must be treated by vaccines and serums before the toxemia can be eliminated, and in some cases a partial resection will be necessary.

Out of one hundred and sixty cases operated on for the release of adhesions without resecting the colon we are glad to report mental recovery in ninety-nine cases. The mortality rate is under 10 per cent. We have estimated that at least 50 per cent. of our patients suffering from various types of the so-called functional mental disorders have lesions in the colon which have to be corrected, so the importance of this recent work can easily be appreciated.

RESULTS IN DETOXICATION.

As further proof of the toxic nature of the so-called functional psychosis we would like to report the result of our work at the State Hospital, Trenton, for the last six years. Prior to 1918, the average recovery rate in this group was 38 per cent. for a period of ten years. This constituted the spontaneous recoveries and was largely confined to the group of manic depressive insanity, so-called. Since 1918, with a thorough detoxication of patients of this group by the elimination of all foci of chronic infection, the recovery rate has averaged 86 per cent. This rate is based upon the condition of the patients at the present time, and not merely upon their condition when they left the hospital. By means of a well-organized and efficient field service we have accurate reports by visits and letters from these discharged cases in the last six years, so that we can truthfully say that many of our patients now have been well for over six years.

This high recovery rate is significant when taken in connection with reports from other states where there has been a steady decrease in the recovery rate for the last six years, due, largely, to overcrowding in most state hospitals. Under the circumstances, the chances

Rickets and the Deprivation of Sunshine and of Ultra-Violet Light.

BY A. H. TUBBY, C.B., C.M.G., M.S.

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HE practice which has been adopted of stating day by day the percentage of sunlight (ultraviolet rays), recorded at the National Institute for Medical Research at Hampstead, has brought home to a large number of people the very invidious position in which London and other large and smoky cities stand in this all-important matter affecting health. When we read that for four consecutive days in the winter none of the ultra-violet rays penetrated the pall of smoke which hangs over us, we begin to realize how terrible the effect must be on the health of the population, especially on its juvenile portion. In the stress of life busy people are apt to forget that certain phases of meteorology recur regularly year by year; and they perhaps scarcely realize that our darkest days are nearly always early in December, especially the first fortnight. I can remember some years in which there was not a single glimmer of sunshine for the first ten days; another year, in which there was none for thirteen days, and one memorable year the sun was invisible for nineteen days.

We are much exercised about the housing problem, and politicians are talking of providing new houses by the hundred thousand. I have, however, failed to notice that they have provided against the vast increase of the smoke nuisance, which new dwellings must

to the psychoses, there are many other neurological conditions the result of toxemia from chronic sepsis. Epilepsy is one of the mental disorders which is undoubtedly caused by chronic sepsis and intestinal toxæmia. Probably in this disease the glands of internal secretion play a very important rôle. Acute chorea. especially in young people, is undoubtedly caused either by the infection of the peripheral nerves or toxic poisoning of these nerves, presumably at the point of exit through the meninges of the cord. The treatment of such conditions by the injection of the patient's own serum, intraspinally, does produce an immunity, and the disappearance of the chorea would substantiate this viewpoint. In many cord lesions of obscure origin, we have demonstrated that chronic sepsis is the principal etiological factor, and in such conditions the intestinal toxemia is one of the principal sources of trouble. This is especially true in multiple sclerosis; we have treated several cases successfully by eliminating chronic sepsis and toxemia in these cases. In some resection of the colon was necessary; in others the method of releasing constricting adhesions was sufficient to produce results.

CONCLUSIONS.

From our investigations over a period of six years, we would conclude that the mental symptoms in the so-called functional psychoses were caused by a number of factors. The principal factor was found to be cerebral toxæmia, the result of chronic sepsis located in the teeth, tonsils, gastro-intestinal tract, and genito-urinary system. Proof is found in the fact that when such foci of chronic sepsis are eliminated early in the course of the disease, the mental symptoms disappear. Further evidence is found in the definite anatomical lesions of the brain tissue in chronic dementing mental processes.

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small infant. If it is deprived of it, the morbid conditions we have named may appear; and, associated with them, is an alteration in the proportions of the mineral constituents of the blood; thus, there is a fall in the percentage of the calcium-content, a "hypocalcémie," which according to him is always present in the convulsive conditions of these infants. It is a constant associate of nerve and muscle hyper-excitability; with the rise in the content the irritability of nerve and muscle gradually disappear. Most significant, he adds, is the fact that the proportion of calcium in the blood can be restored to the normal by such simple means as exposure to the sun or to artificially produced violet rays.

In support of his theory, so far as tetany and convulsions are concerned, he adduces the following facts: Cases are most frequent from November to April, their incidence begins to rise in October, and is most marked in the month of March. They are not simply maladies of infants, artificially fed; but are equally frequent in breast-fed infants in the spring, i.e., towards the end of the long, dark days. A difference in the quality of the milk supplied by cows in the winter cannot be held responsible for the larger number of cases of tetany and convulsions occurring then in infants fed on cows' milk; because care has been taken to supply the cows with the same quality and quantity of food in winter as in summer. The convulsive affections are also most prevalent in those regions where a low temperature with constant humidity prevents the infants getting fresh air as well as sunshine. The geographical distribution of cases is very marked: England, the Northern States of America, Sweden, Russia, and Denmark possess an unenviable notoriety in this respect. whilst the cases are fewer in France and Italy, and tropical countries are exempt. Infants living in towns, particularly in dark houses, narrow streets, and

cause in our great centres. What we wish to see is complete provision made for the prevention of the discharge of smoke from chimneys, especially domestic ones. I would even go further, and make it compulsory that for every new non-smoke-producing house built a similar arrangement should be fitted in an oldfashioned one. Thus, instead of probably doubling the smoke nuisance by the erection of new houses, its incidence would ultimately be diminished by one-half at least. Whilst the energies of the adult population are lessened and the index of the general health is kept at a low figure, the deprivation of sunlight is a positive danger to the life of infants and children, and causes a great increase in their mortality. In order to give point to these remarks I propose to consider the relationships of convulsions, rickets, sunlight, and ultraviolet rays, whether natural or artificially produced.

I have been very much impressed by reading an article by Dr. Pierre Woringer, Chief of the Laboratory of the Infants Clinic in the Faculty of Medicine of Strassburg. It appeared in the "Revue d'Orthopédie," 1924, No. 6, and is entitled "La carence solaire dans la première enfance." The French word "carence" is a little difficult to translate into English in this particular connection. The word is usually employed to signify "one of the phases of bankruptcy." It means an absence of assets or insolvency, thus "Procès-verbal de carence" means a declaration of insolvency; therefore we may infer that "La carence solaire" means an insolvency or bankruptcy of health due to absence of sunlight. I have, however, used the word "deprivation," because it is as near as I can get to the actual meaning of "carence" in one English word.

Dr. Woringer deals with two phases of the insolvency in his article, namely, tetany with laryngeal spasm, and rickets with convulsions. He points out that sunlight is an essential factor in the normal development of the

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small infant. If it is deprived of it, the morbid conditions we have named may appear; and, associated with them, is an alteration in the proportions of the mineral constituents of the blood; thus, there is a fall in the percentage of the calcium-content, a "hypocalcémie," which according to him is always present in the convulsive conditions of these infants. It is a constant associate of nerve and muscle hyper-excitability; with the rise in the content the irritability of nerve and muscle gradually disappear. Most significant, he adds, is the fact that the proportion of calcium in the blood can be restored to the normal by such simple means as exposure to the sun or to artificially produced violet rays.

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crowded quarters, are more often affected than those in the country.

The curative action of light upon infantile convulsions of this type is extraordinary. If the sufferers are exposed daily to the sun's rays or to those emanating from the mercury quartz-lamp, commencing first with five minutes and then working up to 10, 15, 20 minutes a day, all convulsions cease after seven days; and any tendency to hyper-excitability has disappeared by the end of the third week.

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The sanitary conditions associated with many of the convulsive states of infancy and childhood and their seasonal appearances are identical with those of rickets; in fact, there is a striking parallelism. Kassowitz, a great authority on rickets, has insisted on this point; indeed, florid rickets is especially associated with convulsive attacks, and a convulsion may be the first clinical sign. When I was an out-patient surgeon at the Evelina Hospital for Sick Children in the pre-radiographic days, I made some investigations on the earliest appearance of rickets in children, and I found ("British Medical Journal," 1898, October 15, and "Deformities and Diseases of the Bones and Joints," second edition, vol. ii, p. 407) that "pads," peculiar to rickety children, appear on the dorsal surfaces of the feet and hands. The soft tissues at those spots are decidedly thicker than in healthy children, and the swelling may be flattened or domelike: its colour is the same as is seen elsewhere in pallid rickets, and may be compared with that produced by the injection beneath the skin of white semi-transparent wax, slightly tinted to a yellow shade. If, in a healthy child, the skin on the dorsum of the foot or hand is pinched between the fingers, it can be moved independently of the subcutaneous tissue; but, in many

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rickety children skin and subcutaneous tissue are quite inseparable and only a fold more or less thick and composed of both can be raised. It appears as if in many cases solid cedema were present in the skin and subcutaneous tissue. The pads, however, are not due entirely to changes in the subcutaneous tissue; they owe their origin also to swelling and thickening of the epiphyses of the metacarpal and metatarsal bones, hence the pads are more marked towards their distal ends.

In those days it was difficult to fix upon any criteria as to the actual date of the onset of the attack of rickets. I used to ask the questions: When did the child's head begin to sweat at night? When did he cry, as if he were tender all over? When did he appear to be weak in his back and go off his legs? When did the motions become evil-smelling, and when did the abdomen swell? It was thus possible to fix the date of the onset of rickets with some degree of accuracy. Taking one hundred of my tabulated cases of rickets, eighty-six had dorsal pads on the feet and hands and fourteen none. Further observations as to the course taken by the pads went to show that these swellings pass through three stages, viz., semi-fluid and confined to the soft tissues; solid but soft, with some concurrent affection of the bones; and firm, resistant and irregular, due to the fact that the bone-lesion is the last to disappear. These dorsal pads are more noticable in the pallid cases than in the florid.

It must be conceded that not only is the diagnosis of rickets in its early stages difficult, but it may be impossible to determine the actual time of onset. If the bones are affected early, radiographic examinations are of much value. After treatment by the ultraviolet rays their effects can be determined and checked by frequently repeated X-ray examinations of the epiphyses. Incidentally, it must be remarked that fortunately many cases of rickets are not complicated

by convulsions; and in those which escape, the other signs of rickets are often very severe.

Some American authors have shown that both the rickets and convulsions are due to a diminution in the calcium-phosphate content of the blood; also that convulsions are associated with lessening of the calcium element, and rickets are due to a diminution of the phosphorus element. They further find that a minus calcium or a minus phosphorus-content can exist independently, but they often occur in the same patient. and then one meets with rickets complicated with convulsions. Inasmuch as exposure to ultra-violet rays in any form raises the calcium-phosphate content of the blood, it follows that treatment by light of this kind is strongly indicated for rickets as well as for tetany and Experimental and clinical work have convulsions. proved this statement.

Tetany, convulsions and rickets thus have a common ætiology in their regional and seasonal distribution; their cure by exposure to light; and their dependence to some extent on secondary causes, such as deficient nutrition, digestive troubles, and infantile maladies.

Kassowitz, one of the most careful observers on rickets, insists on an increase in the frequency and gravity of cases during the winter and first months of spring; and he finds there is a distinct decrease in the number of cases and their gravity in the later months of spring and in the summer. Hansemann goes further, and says he has noticed at post-mortem examinations that children born in the spring and dying in the autumn never show signs of rickets, whilst those born in the autumn and dying in the spring always show them. Hess, who is an experienced observer on the effects of absence of sunlight, notes that three-fourths of rickety cases begin in the first half of the year and one quarter in the second half. So as to exclude the alimentary factor he gave many infants dry milk during

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the winter, which had been prepared in summer from cows' milk (pasture fed) and rich in vitamin A. He found that the percentage of infants who became rickety on this diet was the same as those fed on cows' milk which had been prepared in the winter from "winter food."

The geographical distribution of rickets bears out

forcibly the contention that one factor in the causation of this disease is deprivation of ultra-violet light. We know that it is very prevalent in Great Britain and particularly in large cities such as London, Glasgow, and Manchester. In spacious and sunshiny countries such as Algeria, Morocco, Arabia, Java, the Pacific Islands, and California, the disease is not seen. Where the air is humid and cuts off the ultra-violet rays of the sun, as in England, Germany, Holland, Belgium, it is a common disorder. An exception, however, may be referred to. In Norway, Iceland, Greenland, and the Faroe Isles, where the amount of sunlight is comparatively small, it has been stated that the disease is rare. I am not sure that this is so; if it be a fact, an explanation may be found in the standard food of the inhabitants of these countries. They eat very largely of fish and many partake freely of cod-liver oil, which is known to contain a specific against rickets. Whilst the African negro escapes, the American, and particularly those in the Northern States, are very often affected.

Rickets is a disease of the poor rather than of the rich, who live in houses, often with gardens, with a good circulation of air round them. The roads in which their houses are situated are wide, and the quarter in which they live lies away from the narrow, crowded streets in which the poor, perforce, must dwell. Those facts, as Finlay and Palmer have pointed out in their articles on the relation of rickets to housing and to non-hygienic social conditions, show that the disease is associated with insanitary dwellings, and crowded areas.

Hutchison and Murphy, in their article on "Rickets

in India," have contributed a very interesting point to the discussion of the question. In the town of Nasik the population is composed of two classes of people: The rich and well-nourished, who impose the custom of "purdah" upon their women and infants and shut them up in dark and obscure houses; and the poor and ill-nourished class, who must disregard "purdah," because their women and children are obliged to work with the men. In both classes mothers feed their infants for at least a year. Amongst the children of mothers who are "purdah," 24.0 per cent. are rickety, whilst of the children of those who are not so, only 4.8 per cent. are affected. As Woringer says, these facts demonstrate eloquently the pernicious influence of seclusion which involves the deprivation of light, especially as the alimentary factors are eliminated in just that class of cases who fall victims to the malady.

Bio-Chemical Researches.—It was thought by certain observers, particularly Mellanby, that the ultimate causation of rickets is the absence in the food of a substance identical with fat-soluble vitamin A. This opinion is being criticized, for rickets may develop on any diet; and whilst cod-liver oil will cure rickets, phosphorus will do the same. If an animal is fed on a diet rich in vitamins, but is confined in a close and dark place, rickets may develop; whilst they may not do so in an animal fed on a diet free from vitamins, so long as he is at liberty.

It is known that a definite calcium-phosphorus balance exists in the blood of normal children. In rickets this balance is disturbed, and there is constantly found a deficiency in the phosphorus element of the content. Experiments seem to show that the maintenance of the physiological relation between calcium and phosphorus is of much greater importance in insuring normal calcification of the bones than the absolute amount of the salts themselves.

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Howland says that deficiency of calcium is not responsible for rickets; and Hess states that it will develop on a diet adequate in calcium but low in phosphorus. Nearly all experimenters are agreed that the inorganic phosphorus is always reduced in active rickets, and many of them assert that phosphorus alone will cure it. Hess and Pappenheiner have demonstrated that rickety lesions, which develop in rats on a diet adequate in calcium but low in phosphorus, may be avoided by short exposures to direct sunlight. They calculated that this protection by sunlight is equivalent to the addition of at least 75 mg. of phosphorus in the diet, in the form of basic potassium phosphate. The ultra-violet rays of a mercury-quartz lamp also act in exactly the same way and produce a very similar effect.

It is generally agreed that some organic substance which is present in cod-liver oil enables the organism to compensate for a deficiency of the calcium phosphorus ratio in the food, and that exposure to sunlight or to the rays of the quartz lamp has the same result. Referring to the length of those ultra-violet rays which are most active, Hess has shown that the optimum wave-length is under 313 μ and that ordinary glass of a thickness of 2.6 mm. completely neutralizes the activity of the rays. It is stated that the rays of the quartz lamp have raised the inorganic phosphorus of the blood from 2.7 to 6 mg.

To sum up, we may say that in well-fed children absence of light does not necessarily produce rickets; in medium-fed children, and in some who are poorly fed, exposure to the ultra-violet rays will probably prevent rickets; whilst in children who are badly fed the ultra-violet rays will not necessarily prevent rickets, but may ameliorate them.

Certain points emerge clearly from the above statements, the most important being the startling effect of

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sunlight and of the ultra-violet rays upon rickets, particularly in increasing the quantity of inorganic phosphorus in the blood. The action of cod-liver oil is more difficult to explain. Whether the effect be due to vitamin A, or to a fourth vitamin distinct from it, is not yet determined. It is not advisable now to speculate further upon the inter-relations of cod-liver oil and ultra-violet rays in the cure of rickets.

It is well known that rickety children are especially liable to respiratory affections, particularly laryngeal catarrh, bronchitis, and broncho-pneumonia. Woringer has observed that in a number of cases treatment by the mercury-quartz lamp is followed by rapid improvement of the respiratory troubles of rickety children, which had existed for several weeks. The ratio of hemoglobin in the blood is also raised.

Hess and Unger have used for the treatment of rickets a carbon arc lamp, similar to but smaller than that employed in taking cinema pictures. Infants were exposed nude, except for eye coverings and spectacles, at a distance of from 3 ft. to 9 ft., the exposure varying from fifteen minutes at 3 ft. to two hours at 9 ft. There was no tendency to burn, and no tanning of the skin. The results were increase in the inorganic phosphate of the blood and progressive improvement in the calcification of the epiphyses.

Practical Conclusions.—In this country the first thing to be done is to originate a national movement for the clearance of the air of towns from smoke-pollution. Town Planning Acts should be universally adopted, and new areas laid out on scientific lines; whilst old-standing areas should be steadily improved, especially by the formation of open spaces, making wider streets, giving freer circulation of air, and affording plenty of breathing space in the houses. It is useless and nearly criminal to run up dwellings for the poor unless they are built with these precautions.

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Turning to the individual sufferer, the ideal course is to expose the infant during the first few months of its life regularly to the sun's rays. In this country, owing to its climate, such advice may be deemed a counsel of perfection. At any rate, the infants should be taken out daily, and the mothers should be enjoined to avoid narrow and dark streets, and to frequent gardens, squares, and other public places. The children should be lightly clad, and have the arms and legs bare, if the weather permits.

If it should happen that the house is a sunshiny one, it will be possible to expose the child directly to the sun's rays in a room, with the windows open, as ordinary glass intercepts the active rays. In all plans of new buildings one ought to insist upon the necessity of stages or terraces exposed to the south, where children can have the benefit of what sunshine there is.

Unfortunately, in fog-bound countries, like ours, where the rays of the sun are often absent for a considerable period during the winter, heliotherapy is limited in its application. In these circumstances we must provide the means of obtaining artificial sunlight. We must ensure in all centres access to sources of ultra-violet rays, and the best is the mercury-vapourquartz lamp. Exposure for five minutes every day to a lamp of 3,000 candle-power will cure rickets and its complications. Even exposure to the rays twice or three times a week will be sufficient to prevent it. Such lamps should be installed in all children's departments of hospitals, infants' hospitals, crèches, infant schools, and dispensaries. It will be found that this treatment is particularly useful from the third to the eighteenth month of the child's life. Ultra-violet rays should not, however, be relied upon to neutralize the effects of negligence so far as fresh air, general sanitation, and good feeding are concerned.

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to the others. The changes in the retina must be regarded as part and parcel of the general disorder, and must be viewed in their due relation to the whole. It frequently happens that a patient, who is suffering from renal cirrhosis, although he is not aware of the fact, consults an ophthalmic surgeon on account of failing sight. In these circumstances it is the discovery of the retinitis that directs attention to the kidney, and the ocular lesions are part of a pathological picture, which includes renal cirrhosis. patient, however, is chiefly concerned about his sight. He is not conscious that there is anything else the matter with him, consequently he does not suspect that the disease discovered by the ophthalmic surgeon may prove fatal. Prognosis in renal cirrhosis must, however, always be considered in this twofold aspect.

1. Prognosis with regard to Sight.—Speaking generally vision is not usually lost completely as a result of albuminuric retinitis. In a particular case the prognosis depends upon the site of a hæmorrhage and the extent of vascular degeneration. If, as so often happens, the macula is implicated, the patient will be unable to read or to recognize a friend on the street, but the peripheral field of vision may be quite intact. It is the central area that is lost, consequently the patient sees nothing directly in front of him. A hemorrhage in course of time will be absorbed, but if the cause of the disease is not removed it is prone to recur, and even in favourable cases the effusion of blood may have damaged the macula beyond the power of complete recovery. In a similar manner a hæmorrhage into the outer layers of the retina injures the layer of rods and cones, causing a blur in different parts of the field of vision. On the other hand, hæmorrhages may occur in the inner layers of the retina-flame-shaped hæmorrhages in the nerve fibre layer-and, unless they are situated at the posterior pole of the eye round about

The Significance of Albuminuric Retinitis in Chronic Renal Cirrhosis.

BY A. MAITLAND RAMSAY, LL.D., M.D.

Honorary Director James Mackenzie Institute of Clinical Research, St. Andrews; Consulting Ophthalmic Surgeon, Glasgow Royal Infirmary.

T is said that on one occasion the late Marcus Gunn wished to follow up a series of cases of albuminuric retinitis in which he had been interested, but found on making inquiry that all the patients were dead. Such an experience gives support to the commonly accepted opinion that the onset of albuminuric retinitis in the course of renal cirrhosismeans a death sentence to the patient within a comparatively short time. There is, however, nothing in the fact that the retina has become affected to explain the danger to life. The pathological changes can be seen, but that adds nothing to their gravity. As far as life is concerned it is the cause of the trouble that really matters, and any sign which shows that a disease is progressing indicates danger. Nevertheless, it should be remembered that no single sign or symptom, when taken as an isolated fact, is of much value either in diagnosis or in prognosis. Every disease must be studied in its whole symptomatology, because prognosis depends upon the association of the clinical phenomena. Mackenzie always laid great stress on that, and insisted that symptoms that are helpful in diagnosis are not of equal value in prognosis. The general perspective of a case of renal cirrhosis, therefore, should never be disturbed by assigning to the ocular symptoms an importance out of all proportion

The Importance of the Early Recognition Urethral Strictures of Large Calibre.

By H. L. ATTWATER, M.CH., F.R.C.S.

Assistant Surgeon to All Saints' Hospital for Genito-Urinary

HE diagnosis of urethral stricture is always easy, if it is suspected. Unfortunated the commencement of the contraction that such cases are most suitably treated, whereas, when the stricture is fully formed, it may be a tedious matter to restore the urethra to its original healthy state. Difficulty arises in cases of large calibre stricture, because the symptoms may be so indefinite as to escape notice unless carefully sought for. It is only by subjecting all cases, in which there is the possibility of a stricture, to careful tests, that the presence of a large calibre stricture will be revealed.

With the onset of infiltration of the urethral wall the bladder has to perform extra work, which becomes greater and greater as the stricture contracts. Cystoscopic examination of a number of cases of stricture of large calibre will demonstrate a varying degree of trabeculation of the bladder, which must be regarded as an indication of the handicap under which the organ is performing its functions. The importance of this needs little emphasis; a bladder which is working under a disadvantage is a source of danger to the upper urinary passages, and, long before the stricture becomes an obvious obstruction to the outflow of urine, there

the macular region, the patient may be unconscious of their presence. Vascular degeneration is more dangerous to sight than hæmorrhage, because it is almost invariably progressive, and vision becomes steadily more and more impaired as the arteriosclerosis increases.

2. Prognosis with regard to Life.—It should be remembered that albuminuric retinitis never occurs either in so-called functional albuminuria or in albuminuria due to simple passive congestion of the kidney. the result of functional inefficiency of the heart. It is rarely seen, moreover, in a first attack of acute parenchymatous nephritis, but on the other hand it occurs very often when acute symptoms supervene in the course of chronic renal cirrhosis, i.e., when an acute phase is grafted upon a chronic condition. The main points to keep in mind are that albuminuric retinitis is always a late manifestation in the course of nephritis; that as a rule it is associated with the phenomena incidental to high blood pressure, and that its onset is determined by vascular degeneration or by acute general toxemia or by a combination of both of those conditions. In the cases in which signs of vascular degeneration predominate the prognosis is always grave, because the morbid changes in the blood-vessels are steadily progressive, not only in the arteries of the retina, but also in those of the brain, the kidney, and other parts of the body-general arterio-capillary fibrosis. On the other hand, where the signs of acute toxemia predominate a favourable prognosis may be given whenever it is possible to remove the cause of the toxemia, e.g., toxic retinitis of pregnancy. Numerous cases of recovery from albuminuric retinitis are on record, but their interest depends not so much upon the disappearance of the ocular lesions as upon the fact of the removal of the cause operating both in the eye and in the kidney.

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Assistant Surgeon to All Saints' Hospital for Genito-Urinary Diseases.

HE diagnosis of urethral stricture is always easy, if it is suspected. Unfortunately, it is at the commencement of the contraction that such cases are most suitably treated, whereas, when the stricture is fully formed, it may be a tedious matter to restore the urethra to its original healthy state. Difficulty arises in cases of large calibre stricture, because the symptoms may be so indefinite as to escape notice unless carefully sought for. It is only by subjecting all cases, in which there is the possibility of a stricture, to careful tests, that the presence of a large calibre stricture will be revealed.

With the onset of infiltration of the urethral wall the bladder has to perform extra work, which becomes greater and greater as the stricture contracts. Cystoscopic examination of a number of cases of stricture of large calibre will demonstrate a varying degree of trabeculation of the bladder, which must be regarded as an indication of the handicap under which the organ is performing its functions. The importance of this needs little emphasis; a bladder which is working under a disadvantage is a source of danger to the upper urinary passages, and, long before the stricture becomes an obvious obstruction to the outflow of urine, there

the macular region, the patient may be unconscious of their presence. Vascular degeneration is more dangerous to sight than hæmorrhage, because it is almost invariably progressive, and vision becomes steadily more and more impaired as the arteriosclerosis increases.

2. Prognosis with regard to Life.—It should be remembered that albuminuric retinitis never occurs either in so-called functional albuminuria or in albuminuria due to simple passive congestion of the kidney. the result of functional inefficiency of the heart. It is rarely seen, moreover, in a first attack of acute parenchymatous nephritis, but on the other hand it occurs very often when acute symptoms supervene in the course of chronic renal cirrhosis, i.e., when an acute phase is grafted upon a chronic condition. The main points to keep in mind are that albuminuric retinitis is always a late manifestation in the course of nephritis; that as a rule it is associated with the phenomena incidental to high blood pressure, and that its onset is determined by vascular degeneration or by acute general toxemia or by a combination of both of those In the cases in which signs of vascular conditions. degeneration predominate the prognosis is always grave, because the morbid changes in the blood-vessels are steadily progressive, not only in the arteries of the retina, but also in those of the brain, the kidney, and other parts of the body—general arterio-capillary fibrosis. On the other hand, where the signs of acute toxemia predominate a favourable prognosis may be given whenever it is possible to remove the cause of the toxemia, e.g., toxic retinitis of pregnancy. Numerous cases of recovery from albuminuric retinitis are on record, but their interest depends not so much upon the disappearance of the ocular lesions as upon the fact of the removal of the cause operating both in the eye and in the kidney.

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of the stricture. The colour of the mucous membrane is also altered, and tends to be paler than normal, the healthy salmon-pink being replaced by a greyishyellow or a greyish-white tint. In the event of the stricture being inflamed the surrounding mucosa becomes engorged and presents a redder appearance than normal. By ballooning the urethra by means of the bellows attached to the urethroscope the fibrous infiltration at the site of stricture is made much more apparent. It will be seen that, when the urethra is fully distended with air, there is in many cases a constriction, the canal being larger both before and behind the site of narrowing. If the supply of air be cut off, the healthy urethra will instantly collapse into the typically closed channel, with its central slit and radiating folds, whilst, if a stricture be present, the closing down of the mucosa is obviously sluggish, and the urethra moves as though it were overcoming considerable resistance.

The diagnosis made by the above urethroscopic examination will be complete as to the presence and position of a large calibre stricture. It does not, however, give much information about the actual size of the contracted passage. This is obtained by means of the Kollmann's dilator as follows:—

The urethra is thoroughly anæsthetized by the injection of a local anæsthetic within its lumen, and the straight Kollmann's dilator is introduced as far as the bulb. This instrument will be sufficient to deal with most cases, but if the stricture has been seen to involve the bulbo-membranous junction, with extension into the membranous urethra, the straight instrument is still used, because it is always wise before passing instruments, such as sounds or dilators, into the posterior urethra to insure an open anterior canal. The curved instrument is only used when the anterior urethra is shown to be free from contraction. During the use of the dilator the patient lies comfortably on his back on a couch, and when the instrument has been inserted it is clamped and held steady by a clip, which is fixed to the top of a stem passing between the thighs of the patient to a plate which lies on the surface of the couch. In this way all swaying and other unnecessary movements of the appliance are avoided, which is very important if pain and

may be a certain degree of infection and impairment of the renal activities.

The actual examinations are carried out by means of certain instruments, the most important being the anterior urethroscope and the Kollmann's dilator. It is useless to imagine that if a large calibre stricture is present it will be discovered by the passage of a bougie, because the narrowest parts of the urethra are the external meatus and the fossa navicularis. The rest of the canal is highly elastic and can easily be dilated to 45 Charrière. Certainly if the surface of the epithelium within the stricture is much distorted by scarring, there may be a feeling of roughness imparted to the bougie as its tip passes through the altered region, but with large calibre strictures this is most often not apparent. If, however, an anterior aerourethroscope be introduced and the interior of the urethra be examined carefully, not only as to its shape, size, and colour, but also as to its behaviour when expanding and collapsing under alterations of air pressure, the following points will be seen.

The shape of the transverse section of the healthy canal in the collapsed state, when viewed through the open urethroscopic tube, is that of a number of minute radiating folds, fourteen to nineteen in number, surrounding a central slit, which presents certain variations according to the exact part of the urethra which is being examined, being either a transverse or a vertical slit with the folds radiating from it. If a stricture be present this figure loses its characteristic appearance, the folds are diminished in number to three or four, and the central opening becomes roughly circular with an inclination for the walls to fail, to collapse together completely. The result is a tendency to the formation of a funnel-shaped opening at the end of the urethroscope, into which it is possible to see for a varying distance according to the degree of fibrosis

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bleeding after the stretching are to be prevented. As soon as the instrument is in position the wheel at its outer extremity is cautiously turned, the surgeon using the tips of his fingers, and being ready to cease turning the moment he feels the slightest check to the rotation of the wheel. The point at which this check occurs is noted by reading the dial on the instrument, and the patient is allowed to remain in statu quo for a few moments. The first check is due to spasm, and in a short time, two to three minutes, it will be found that the wheel turns easily forwards a few fractions of a rotation. The instant a check is felt the turning is again stopped for a time, when the process is repeated in exactly the same manner. It will be noticed that at each advance the amount that the wheel can be turned becomes less and less until no advance can be made without the use of undue force. When this point is reached the position of the index on the dial of the dilator should be read and noted.

In the presence of a stricture of large calibre the advance will be stopped at a point short of the full reading of the instrument (45 Charrière), whereas, if there is no stricture, the dilator can be pushed to its full size in a few minutes from the moment of the

introduction of the appliance.

It is only by careful inquiry and instrumental investigation, as described above, that the presence of a stricture of large calibre can be demonstrated in every case in which it occurs. Sometimes in cases which have only recently been freed from gonococcal infection, although dilatation is made fairly easily, yet considerable hæmorrhage may result if the stretching is pushed too far. Such cases belong to the class called by Oberländer the stage of soft infiltration, and every care must be taken not to push the dilatations too rapidly. The last remark applies to all cases, because it must never be forgotten that the urethra is in an insensitive state. I have, however, never seen any bad results when proper care and technique have been used.

The diagnosis of small calibre strictures rarely calls for much special skill. Symptoms of obstruction, such as difficulty of micturition, pain whilst passing water, or attacks of retention, are often present, and give a preliminary guide to the nature of the case. Also, on testing with bougies, or catheters, difficulty may be found in the passage of the instrument.

The position of a stricture can be located by passing

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a full-sized bougie, but in my experience it is only occasionally that a large calibre stricture can be detected by so simple a means. The familiar grating sensation frequently felt when a stricture of small calibre is penetrated by a bougie or catheter is rarely noticed when the stricture is of large size. This is due to the fact that there is much less scar tissue present in the latter variety of constriction. Except for the completion of the diagnosis and to a slight extent as an aid to prognosis, the knowledge of the exact position of a stricture is not of paramount importance. Often the position of its external extremity can be located by the passage of a bougie too large to penetrate the stricture or by the use of the urethroscope.

The finding of multiple strictures at two, three, or more points of the canal is, I believe, very often a fallacious observation, and is most frequently due to the tip of the instrument catching in a prominent band or bend in a canal contracted over a considerable part of its length. This statement is based on the fact that it is only very few cases which show evidence of multiple constriction when examined by the urethroscope subsequently to a course of dilatation, whilst very many cases show evidence of fibrosis extending over a considerable length of the canal.

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been called upon to certify 200 cases of insanity, an average of five patients per annum.

Amongst general practitioners of wide experience opinions may differ, according to the predilection of the individual, as to whether medical, surgical, or obstetrical practice is the most important, as to which imposes the greatest responsibility, and as to which calls for the exercise of the highest qualities of the mind. But there is not room for much difference of opinion as to the psychiatrical department of their work. Psychological medicine may be considered only a branch of medical, surgical, and obstetrical practice, but it is very important, very responsible, and calls for the exercise of the best judgment of the practitioner. This is especially true when the practitioner is brought face to face with the duty imposed upon him of signing the statutory medical certificate to authorize the transmission of a patient for detention in an asylum. It is a delicate and disagreeable duty that he would willingly shift to other shoulders. Many private practitioners, within recent years, refuse to sign a lunacy certificate without first receiving a letter of indemnification from a responsible person to protect them against the risk of a legal action. That is an attitude the medical officer to a parish cannot take up. To certify lunatics is part of the public duty involved in his appointment, and in the interests of the community he has to undertake it. The sending of persons of unsound mind to asylums and institutions, so that they may obtain suitable treatment, is often a desirable end in itself: but often the urgency is very great, especially when they are a danger to themselves and to others. The public demand to be relieved from oppressive fears and protected from possible violence. For a medical man under such conditions to refuse to accept the responsi-bility of signing a lunacy certificate is a serious matter, and if he does so because there is ever present with him

A General Practitioner's Experience of Lunacy Certification.

By J. BURNETT LAWSON, M.D., C.M., J.P.

Medical Officer for the Parish of Rothesay, and School Medical Officer
for the County of Bute.

"RE you an expert in lunacy?" "No, sir, I am a general practitioner." The question was addressed to me by the leading counsel for the defence of a young man under trial for the crime of rape, in the High Court of Justiciary, in Glasgow, about five years ago.

His next question was: "What qualifications then have you to give evidence?" Before I replied, the judge smilingly told him that all registered medical men were qualified to give evidence in mental cases.

When I qualified at Glasgow University in 1883, candidates for the degrees of M.B., C.M., were not required to attend a course of instruction in mental diseases, given by the University lecturer, or by other recognized teacher, as candidates now are for the degrees of M.B., Ch.B. Any knowledge of mental diseases I had at the beginning of my practice was acquired in the usual medical, surgical, and midwifery courses, and from lectures in medical jurisprudence. In 1887 I became medical officer for the parish of Rothesay. Rothesay, the popular resort on the Firth-of-Clyde, has a resident population of about 10,000, but at the height of the summer holiday season is usually augmented by thirty or forty thousand visitors.

During my forty years of general practice, I have

table beside his bed. My sudden entrance and inquiries seemed for the moment to settle him and he answered me rationally. However, in another moment he jumped up in bed and seized the knife. Addressing him by name, I ordered him to put down the knife. He did so at once, and then said to me, "I wish you would sit beside me, doctor, as I cannot help doing that." I had the knife removed, got a male attendant to remain with him overnight, and he was removed to the Argyll and Bute Asylum in the morning. There he made a good recovery and returned well in a few months.

In 1890, the police reported to the Inspector of Poor that a young man, aged 25, had caused great alarm by discharging a pistol on a country road some distance from the town, that he was in his house, a villa on the outskirts of the town, where he lived alone, his only companion being a large mastiff dog, and that the persons resident in the district were in a state of terror. I knew the young man; he had until recently been engaged in a public office, but on account of his eccentricities had been dismissed. It was little wonder that he had become deranged, as the history of the family had been most tragic. He had been born in the Far East, where his father had died, it was said, from sunstroke. He had been settled here for some years with his mother and a sister. The sister was a cretin and her idiocy plain to all. She died the previous winter from influenza. mother, who showed signs of myxædema, became depressed after the death of her daughter, and one morning she was found dead from hanging. The manner she carried out the hanging was unique and is worth describing. She was found suspended on the inner side of a room door. On neither side of the door was there any nail or peg. She used a fine rope, or clothes-line. Knotting it at one end, she placed the knot at the inner side of the bottom of the door, taking the free end of the rope under the door and then over the top of it; she had then formed a noose, which she had adjusted to her neck as she stood on a stool, then, kicking the stool from under her feet, she had become suspended two or more inches from the floor. In this position she was found dead. It was a few weeks after these sad experiences that the young man was reported by the police. I accompanied a police sergeant to the house and had arranged for an attendant to follow. The sergeant was a somewhat emotional Celt, and as we approached the house he said to me, "Gosh, doctor, this is rather a dangerous business!" I comforted him by saying I thought we would succeed without any trouble. On ringing the bell the young man opened the door; knowing him, I said, "Well, John," and immediately shook hands with him and walked into the room with the constable following. The youth looked most dejected and timid. I frankly told him why we had visited him and asked for his pistol, which he gave me and I handed it to the constable. It was plain his mind was quite deranged, and that in his own interests and that of the neighbourhood he must be taken care of. The following morning he was removed to the asylum.

These two cases I have detailed presented no difficulties in certification; they were certified and

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a dread of legal proceedings, it is high time that all such risks of the latter were abrogated. On reflection, I cannot but think that private practitioners who are deterred by fear of legal consequences from taking upon them the moral responsibility of certifying lunatics, expose the public to indefinite dangers and the unfortunate patients themselves to the dreadful risk of committing suicide.

Looking back upon my forty years' experience of general practice and reflecting upon the 200 persons of unsound mind that I have certified "as proper persons to be detained under care and treatment" in an asylum or institution, I recall how necessary I found it to be alert to increase my knowledge on the subject of insanity and to fortify myself by reading and continual reference to books, such as Taylor's "Principles and Practice of Medical Jurisprudence," and Clouston's "Mental Diseases." There are a number of cases that stand out so prominently in my mind from unique and collateral circumstances, such as imminent risks to the patients themselves, or to those contingent to them and the public generally, and apparent dangers or difficulties experienced by myself in approaching them, that I think brief notes regarding a few cases may interest readers. In inditing these notes I do not follow any particular clinical classification of mental diseases, I dispense with initials or names, and limit myself to the thirty years ending with the onset of the war in 1914.

In 1887, a poor man aged 50 had been under treatment for a septic hand. After days and nights of extreme pain and sleeplessness he had the hand opened. He was reported to the Inspector of Poor as having become insane and a danger to his family and neighbours. I was asked to visit him. Approaching his home, which was entered off a balcony common to a number of small houses, I found a gathering of people on the balcony and was told by his wife that it would be dangerous for me to enter the house, as he had a large bread-knife beside him, which he had threatened to use to anyone who approached him. I opened the door, walked direct to his bedside and sat down. I noticed the large knife on the

table beside his bed. My sudden entrance and inquiries seemed for the moment to settle him and he answered me rationally. However, in another moment he jumped up in bed and seized the knife. Addressing him by name, I ordered him to put down the knife. He did so at once, and then said to me, "I wish you would sit beside me, doctor, as I cannot help doing that." I had the knife removed, got a male attendant to remain with him overnight, and he was removed to the Argyll and Bute Asylum in the morning. There he made a good recovery and returned well in a few months.

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removed for their own safety and the safety of others and to the satisfaction of all concerned. But not infrequently I have experienced the greatest difficulty in eliciting "facts indicating insanity and observed by myself," and that particularly when I have been asked to see the patient as the second medical practitioner, and when urgency has limited me to one comparatively short visit.

In 1890, still to take an example from my early experience, and that of a patient who was in reality overdue for care and treatment, there was a man aged 60, who had followed the sea as a ship's carpenter during his working life, but was now retired. He was a short, thick-set, sturdy man with a sallow complexion and a morose expression. I had noticed the man in the streets, steering always a straight course, looking neither to the right nor the left and going to church on Sundays with his face sullen and gloomy. He did not know me, and that was an advantage when I approached his little cottage on the day I was asked by the Inspector of Poor to visit him. His wife met me at the door in fear and trembling, and there I learned the "facts indicating insanity communicated to me by others." It was a dreadful tale of violent outbursts of temper, of threatened violence, sleepless nights, and all manner of suspicions and delusions regarding himself and others. "His head is turned," she said; "he sits up all night studying the works of Bacon and Locke, and the minister can make nothing of him. He is through in the garden with my brother-in-law and another man. I hope he doesn't know you are a doctor, for he threatened Dr. - with a hatchet this morning, but he is quiet and sensible at present." She passed me through into the garden. I found three men sitting on a seat; I approached them, and with a friendly salutation made to sit down beside them and they made room for me. The brother-inlaw I knew had recently purchased a house in the neighbourhood and was engaged in a lawsuit regarding it; in the course of conversation, I inquired, as if I were a stranger, about certain houses and made comments on various subjects. The patient conversed as reasonably as any of the others, although his glances at me were rather furtive and suspicious. I hazarded some personal references to himself, but I could elicit no facts indicating any aberrations. After about half an hour's talk, I rose to go, and the patient, evidently quite pleased with my visit, rose also to show me through the cottage to the door. As we approached the cottage, I let drop a religious remark. Jumping back from me and taking hold of the sleeve of my coat, he held me and began a tirade on religion and philosophy, quoting from Bacon and Locke and prophesying all kinds of disaster to the world. His expression was sinister and his manner so alarming that I was glad to get away from him. I had seen and heard enough for my purpose.

I will now delineate a case that not only presented

difficulties to the general practitioners certifying, but also misled an expert—a Commissioner in Lunacy.

In 1893, I was called upon to certify this patient. He was between 60 and 70 years of age, a quiet, unobtrusive, mild-mannered man, whose family history bore evidences of insanity. He had been a master mariner and had sailed the seven seas. When his voyaging days ended he got casual employment in yachts during the season. One winter he was appointed caretaker of a steam yacht, laid up in the Gareloch. During the winter, whether the loneliness of the situation or failing health, or both, were the cause, he began to act strangely and to attract attention in the Gareloch. At night he armed himself with a cutlass and carried a gun and was heard shouting aloud under delusions. He was sent home, and after careful observation and the discovery of certain fixed delusions that he cherished, as his sister with whom he lived, and who also was eccentric, could not manage him, he was certified and sent to the District Asylum. Prior to going there he had suffered from severe dyspepsia and had lost weight. In the asylum he continued to lose weight and had hæmatemeses. Malignant disease of the stomach was diagnosed, and the prognosis being unfavourable the medical officer of the asylum thought he might be better in his own home. It was agreed to continue him as a boarded-out patient at home. He improved in health, gained weight and lived for several years. He moved about the town and pier, a quiet, gentle-looking man, spoke rationally to any person who addressed him, and he attended church regularly. I visited him occasionally and he was also visited at intervals by a lunacy commissioner. At my visits I had conversations with him, and knowing his weak points noted the fact of his sustained delusions. I learned from his sister the trouble she had with him, and she sometimes thought that he should again be removed to the asylum. On one occasion a new commissioner of lunacy visited him, and a letter was received by the Inspector of Poor stating that this patient was now recovered and that he should be discharged by the medical officer. I was asked to report. In doing so, I stated the fixed delusions he still had and how they could be elicited. If I said to him, on a stormy night, "You would not care to sail down the Channel on a night like this," he would become roused and vociferate that this was just the sort of night he would like to go down the Channel, and he would become excited and begin to make preparations, as if to go forthwith. Or, if one suggested that he would not now be competent to take command of a vessel, he would become furious and asseverate that he was prepared at any moment to take command of the Channel Fleet, as it was then called. We heard no more of the recovered lunatic from headquarters.

On reviewing the cases which have caused me more than usual concern and difficulty in certification the various states of mental depression or melancholia stand out prominent, and inasmuch as the greater

removed for their own safety and the safety of others and to the satisfaction of all concerned. But not infrequently I have experienced the greatest difficulty in eliciting "facts indicating insanity and observed by myself," and that particularly when I have been asked to see the patient as the second medical practitioner, and when urgency has limited me to one comparatively short visit.

In 1890, still to take an example from my early experience, and that of a patient who was in reality overdue for care and treatment, there was a man aged 60, who had followed the sea as a ship's carpenter during his working life, but was now retired. He was a short, thick-set, sturdy man with a sallow complexion and a morose expression. I had noticed the man in the streets, steering always a straight course, looking neither to the right nor the left and going to church on Sundays with his face sullen and gloomy. He did not know me, and that was an advantage when I approached his little cottage on the day I was asked by the Inspector of Poor to visit him. His wife met me at the door in fear and trembling, and there I learned the "facts indicating insanity communicated to me by others." It was a dreadful tale of violent outbursts of temper, of threatened violence, sleepless nights, and all manner of suspicions and delusions regarding himself and others. "His head is turned," she said; "he sits up all night studying the works of Bacon and Locke, and the minister can make nothing of him. He is through in the garden with my brother-in-law and another man. I hope he doesn't know you are a doctor, for he threatened Dr. --- with a hatchet this morning, but he is quiet and sensible at present." She passed me through into the garden. I found three men sitting on a seat; I approached them, and with a friendly salutation made to sit down beside them and they made room for me. The brother-inlaw I knew had recently purchased a house in the neighbourhood and was engaged in a lawsuit regarding it; in the course of conversation, I inquired, as if I were a stranger, about certain houses and made comments on various subjects. The patient conversed as reasonably as any of the others, although his glances at me were rather furtive and suspicious. I hazarded some personal references to himself, but I could elicit no facts indicating any aberrations. After about half an hour's talk, I rose to go, and the patient, evidently quite pleased with my visit, rose also to show me through the cottage to the door. As we approached the cottage, I let drop a religious remark. Jumping back from me and taking hold of the sleeve of my coat, he held me and began a tirade on religion and philosophy, quoting from Bacon and Locke and prophesying all kinds of disaster to the world. His expression was sinister and his manner so alarming that I was glad to get away from him. I had seen and heard enough for my purpose.

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On reviewing the cases which have caused me more than usual concern and difficulty in certification the various states of mental depression or melancholia stand out prominent, and inasmuch as the greater

number of melancholics that I have been called upon to deal with have been comparatively young persons, the difficulty of getting parents or relatives to consent to their certification has been sometimes insurmountable, even although they were comparatively poor and quite unequal to provide for the care of the patient at home. I am fully conscious that in several cases in which I felt it my duty to urge, strongly, upon friends to acquiesce in the removal of a patient to an institution, I have incurred their displeasure. But realizing as I have all along done that such patients are liable to suicidal and homicidal tendencies, and having observed frequently in the Press that persons who have committed suicide were, prior to the dreadful act, depressed or melancholic, in all such cases where it was plain that the patient's parents or relatives were poor and could not have him adequately protected and cared for at home, however great their solicitude may have been to save him from the asylum taint, I have in my public capacity insisted upon institutional treatment and I never had reason to regret it. Even in institutions I have known of two patients who eluded their caretakers and succeeded in committing snicide.

As an example of difficulties found in such cases let me relate the case of a lady who, in 1903, and when about middle-life, had an attack of melancholia, from which she recovered, after a short period of institutional treatment. She regained all her cheerfulness and willingness to help others. She was interested in church and social service, was a good entertainer and deft at needle and fancy work. A few years after she had a return of melancholia of the obstinate variety. She was then living alone in a good house and was possessed of some private means. She was observed by her neighbours and friends to be neglecting her person, her food, and her home, to have hecome silent and taciturn, and to remain for days only partially dressed. She would stand for hours gazing towards a window without any apparent interest in anything she may have noticed. Friends came on the scene and for short periods lived with her and left thinking they had been helpful to her, but no near relation was known who could have acted on her behalf. The case was reported to the Inspector of Poor and I was asked to visit her. That she was living abnormally was evident, but she talked rationally, rebutting

the points in her conduct which were noticed to be so aberrant to her former manner of life. She begged to be left alone, and reflected severely upon the persons who had gratuitously given information regarding her. I felt convinced that she should be in an institution, and that if she remained at home there were risks ahead, but certain difficulties presented themselves to the Inspector of Poor and myself. We kept her under observation. I visited her on several occasions, but on two of them did not get admission, although she could be seen in the room in a fixed attitude gazing towards the window. Shortly after my last visit, as she had not opened her door one day to callers and a smell of gas was experienced coming from her house, the police entered it. She was found not much the worse for the fumes she had turned on with intent to harm herself. She was certified and sent to the District Asylum. She is there now, much improved and living a useful life.

I have already indicated that one reason why it has fallen to my lot to certify so many patients is the great increase in the population during the summer months and the thousands of week-end trippers. It is inevitable that in such promiseuous crowds there will now and then be found mental cases. One Saturday, a number of years ago, there were brought into the police station three lunatics who had been found wandering about. The most troublesome class of patients I have been called upon to deal with have been acute alcoholics. They have been met with in the police station, in hotels, and in boarding houses. These patients suffering from delirium tremens, have been, generally speaking, very mad men; and in a small community with no hospital adequate to treat them in and no trained attendants immediately available to watch them, they have been a source of much concern and worry to overwrought officials and others at a most inopportune season of the year. Some of them have been in the possession of money and some have not. It has been feasible at times to get the former cared for in their temporary lodgings with attendants imposed upon them. An attempt was generally made to get into touch with their friends at home, but that was not always successful. And inasmuch as the insanity is frequently brief, though the dangers to life are great, there has been in most

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prior to the time he would have gone, by steamer, to the asylum, and was highly indignant that it had been contemplated sending him thither.

It is probable that had he been away he would have made trouble and threatened a legal action. We were pleased to hand him over to the care of his brother with particular instructions as to his management when he got to his home. That brother had a very inadequate idea of the condition the patient had been in, of the great danger he had passed through, and of how necessary had been all the precautions that had been taken for his protection and treatment.

The above case indicated a narrow escape from trouble and possible litigation, and I have had similar experiences, chiefly in connection with alcoholics.

The cases which I have related, and which demonstrate what a difficult and delicate duty the certification of lunacy is to the general practitioner, occurred prior to the great war. In that eventful year, 1914, I had to certify fifteen patients, although in the previous year, 1913, the number certified was only two, and in the three succeeding years, 1915, 1916, and 1917, the number certified was three for each year respectively. I can give no particular reason why I should have certified fifteen cases in 1914, unless it was that insanity was phenomenally rampant all over the world and that the war itself was its culminating ebullition.

I certified one case in 1914, which I would not have been called upon to do but for the emergency of the war. In the month of August, the month we entered into the war, a German was resident in one of our hydropathic establishments. He, of course, had to register as an alien and report himself daily at the police station. As he had had about a year's residence in Britain and had moved about a good deal and was a highly educated and intelligent man. it had been suggested that he might be a German spy, and in that connection he had undergone inquisitorial examinations by the police and Crown officials. In the fourth week of the month, he began to speak and to act strangely. On his daily visits to the police station this was noticed by the officer, and the staff and residents in the hydropathic, who all along had felt interested in him. became somewhat uneasy on account of his conversation and movements. He went about the corridors in a furtive fashion, wringing his hands and if occasionally he did engage in conversation with anyone, it was to inquire if he were going to be shot, and to deplore that his money was running short and he could not get into communication with his friends. The parish authorities were informed and I was asked to examine him. He was an immaculately dressed

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In 1895 a case of apparently transient alcoholic insanity came under my notice. I was asked at two o'clock in the morning to visit a villa two miles distant. In the lower flat, I was ushered into a dining-room in which were two gentlemen. One, a strong, handsome young man, was smoking his pipe; the other, a smaller and older man, who was the patient, was restless and talkative. I was told he had been drinking hard for some time and that during the night he had created great alarm to his wife and family and annoyance to the family living above by the noises he was making by shouting and moving furniture about. The gentleman who was with him lived above, and had come to the assistance of the alarmed family and the distraught man.

He had succeeded in subduing the patient and curtailing his activities. I advised the patient to go to bed and I administered a sedative hypodermic injection. When I called the next day I met a harmonious family. The patient had slept a few hours, and was up and dressed. He posed as a sort of superman, he was a member of the histrionic profession, and he was profuse in his apologies, in presence of his wife, for the trouble he had caused during the night. He was now all right and would be careful for the future. I advised him as to his habits and warned him as to the danger he had been in during the night. Yes, of course, he knew all that, but he would be oareful in the future. A few weeks after I was called upon to accompany a constable six miles into the country. A man had been found on the roadside with his throat cut and had been taken into a farmhouse. I found the patient was the same man I had visited in his villa residence a few weeks previously. He looked a miserable and dejected subject. The wound was across the larynx, about three inches long, superficial and there had been little bleeding. I sutured the wound and dressed it. He was conveyed to the police station. His wife anxiously petitioned that he should be sent to an asylum, and he made no protests himself.

I have seen two other similar cut throats during my period of practice, neither of which were fatal. They had the same ætiology, namely, acute alcoholism.

I recall another case, in the year 1897, of a man who had got into a good private lodgings. The first night he created great consternation in the home and neighbourhood by his hallucinations and delusions. When alone he began to talk and shout, as if there were persons in the room, to upset furniture and get under the bed. The police were called in and I was sent for. Attendants were engaged to remain with him, and attempts were made by the police to get into communication with his friends. The second day had passed with little improvement, and as it was clear he could not remain where he was he was certified for removal to the asylum. On the following morning, the usual preparations had been made for his removal, as he had slept for some hours as the result of a sedative injection, he awoke quiet and rational. A brother arrived shortly

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professional man in his fiftieth year. He told me he was a medical man—a nerve specialist—in Berlin; that he had retired more than a year ago, and had been travelling since then in England and Scotland. He had spent much time about London, and in the summer he had travelled in the north of Scotland and had arrived in Rothesay towards the end of July. He spoke excellent English and answered all my questions satisfactorily, all the time glancing at me furtively and suspiciously. That he was obsessed with fear was plain and he asked me more than once if he were to be shot. congratulated him upon his excellent English and also his good fortune to be retired at his age, to be possessed with affluence sufficient to travel and enjoy such a pleasant itinerary in England and Scotland. To comfort him I assured him he was not likely to be shot. That he would probably have to leave the hydropathic, but he would be transferred to another institution, where he would enjoy quietude and be well cared for. At the end of my interview, I confess I had a doubt as to whether he was feigning or not. The parish officials were in doubt as to how to deal with him, under the exigency of war conditions, and telegraphed to the Local Government Board for instructions. The reply was that he was to be dealt with as any other destitute lunatic would be dealt with. He was sent to the District Asylum. I learned that he was rather excited in the course of his journey to the asylum, occasionally exclaiming aloud, "to be shot at dawn." I had elioited from him that he had no particular friends in Britain, but he gave the name of a German, whose business address was Mincing Lane, London. The Inspector of Poor communicated with this person and a reply was received, stating that he did not know Dr. —, but he knew his brother, that the doctor belonged to a good Berlin family, that there would be difficulties in getting into communication with them, but he would attempt to do so through Switzerland. In any case, he would himself be responsible for the expense of his treatment, and meantime he sent £5. The sequel was that in December, when it was announced in British newspapers that our government were arranging for sending doctors and invalids back to Germany, his London friend was on the alert and arranged for his discharge from the asylum and his passage to Germany via Flushing; and he left on Christmas Day.

He was the only confrère that it has been my lot to certify, and I feel sure that but for the great exigency of war I never would have certified him.

In the earlier years of my practice there was a class of mental patients that I was frequently called upon to certify; it comprised those suffering from senile insanity and dementia. In this parish they were chiefly old women, who lived alone and were dependants upon aliment dispensed by the parish, or upon more precarious doles received from members of their families,

charitable persons, or institutions. Most of these old women had been mill-workers and had been left stranded when the cotton weaving industry became defunct here, forty years ago. It was no pleasant duty to certify such old persons and to have them taken from their "own little corners," and sent forth from the town in which they and their forebears had lived all their working days. There were few ancillary services then. District nurses there were none, and however willingly neighbours or hired persons agreed to undertake their management and supervision they were apt to become worn out by the ceaseless vigilance required of them, particularly at nights. Those old women, who had been quiet and respectable neighbours, and from no fault of their own, but from their loss of memory, their restlessness, their suspicions, their accusations of stealing from them, their changed and dirty habits, and their hallucinations, had become a nuisance and unmanageable by the inadequate means at our disposal, so that certification and removal became urgentthere was no alternative then.

I recall a nonagenarian old woman who lived alone, but was supervised by a neighbour, who made daily visits to her. One morning I had visited her before the neighbour called. I found her in her nightgown sitting behind the door of her apartment with a poker in her hand and her face bearing evidence of extreme excitement, with beads of froth at the angles of her mouth. She was cold and exhausted. She told me that she had been engaged for hours putting out people who persisted in coming in and sitting around her bed.

Another patient, an old woman over eighty years, seemed to get amusement from her hallucinations at nights. She would describe the characters who would surround her bed and their strange antics; the only thing that annoyed her was that to all her speeches they made no reply.

I had early formed the opinion that this class of insanity, dementia or enfeeblement of mind, was largely preventable. That the predisposing causes of it were loneliness, unsuitable food, insufficient clothing, inability to take care of the body and to take exercise,

and the unwholesome effects of living in small, cold, insanitary houses. The Rothesay Parish Council. adopting this view, availed themselves of premises they had and converted them into a parish home, capable of accommodating six patients. Since 1907 this home has comfortably sheltered many old women and occasionally an old man. Some of them, octogenarians and nonagenarians, have become mentally troublesome, but rarely has it been found necessary to send patients of this class to the asylum. But for the intervention of the great war the Parish Council would have had erected a new parish home, on a desirable site, with greatly increased accommodation and suitably equipped for the care and management of the sick and aged poor. At present the plan for it is engaging the attention of the Parish Council and the Scottish Board of Health, and it is hoped the home will soon be a concrete fact.

Apart from parish patients, it is my observation that many old persons who were similarly circumstanced to those above described, have passed to their rest having missed the terrible affliction of mental disease, and many to-day are living immune from it, by the timely beneficences of old age pensions, the services of district nurses, and the many other agencies that enlightened authorities have brought into operation.

The Treatment of Psoriasis by the Mercury Vapour Lamp.

BY W. F. CASTLE, D.S.C., M.D., M.R.C.P.

Dermatologist to the Queen's Hospital for Children, and to the West End Hospital for Nervous Diseases, etc.

SORIASIS is a disease which is notoriously chronic and difficult to treat, and in consequence the methods adopted cover a large range. a disease which taxes to the utmost the resources of the physician and the patience of the sufferer. To have psoriasis is bad enough, but most patients find that the treatment is worse than the disease. Especially is this the case with ladies, who soon become tired of spoiling their dresses and underclothing with ointments of various descriptions, and usually prefer to allow the psoriasis to run its course. Most drugs in the pharmacopæia have, at some time or other, found their way into medicines for the treatment of psoriasis, the favourite undoubtedly being arsenic, continuance of which over long periods is occasionally attended with the most disastrous results. Patients have a way of taking old prescriptions to be repeated time after time.

Treatment by prolonged medicated baths has its most powerful advocate in Sabouraud, but most patients who have tried them find that a whole hour spent in a hot bath every day is rather a waste of time, besides which many think that the treatment is weakening.

Vaccines, produced from every possible source, have been tried and found wanting. X-rays are occasionally useful in certain carefully selected cases, but their use is

and the unwholesome effects of living in small, cold, insanitary houses. The Rothesay Parish Council, adopting this view, availed themselves of premises they had and converted them into a parish home, capable of accommodating six patients. Since 1907 this home has comfortably sheltered many old women and occasionally an old man. Some of them, octogenarians and nonagenarians, have become mentally troublesome. but rarely has it been found necessary to send patients of this class to the asylum. But for the intervention of the great war the Parish Council would have had erected a new parish home, on a desirable site, with greatly increased accommodation and suitably equipped for the care and management of the sick and aged poor. At present the plan for it is engaging the attention of the Parish Council and the Scottish Board of Health, and it is hoped the home will soon be a concrete fact.

Apart from parish patients, it is my observation that many old persons who were similarly circumstanced to those above described, have passed to their rest having missed the terrible affliction of mental disease, and many to-day are living immune from it, by the timely beneficences of old age pensions, the services of district nurses, and the many other agencies that enlightened authorities have brought into operation.

The Treatment of Psoriasis by the Mercury Vapour Lamp.

BY W. F. CASTLE, D.S.C., M.D., M.R.C.P.

Dermatologist to the Queen's Hospital for Children, and to the West End Hospital for Nervous Diseases, etc.

SORIASIS is a disease which is notoriously chronic and difficult to treat, and in consequence the methods adopted cover a large range. It is a disease which taxes to the utmost the resources of the physician and the patience of the sufferer. To have psoriasis is bad enough, but most patients find that the treatment is worse than the disease. Especially is this the case with ladies, who soon become tired of spoiling their dresses and underclothing with ointments of various descriptions, and usually prefer to allow the psoriasis to run its course. Most drugs in the pharmacopæia have, at some time or other, found their way into medicines for the treatment of psoriasis, the favourite undoubtedly being arsenic, continuance of which over long periods is occasionally attended with the most disastrous results. Patients have a way of taking old prescriptions to be repeated time after time.

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strictly limited. Intravenous and intramuscular medication, at present so fashionable, merely consist in giving the same drugs in another way. The same patients return year after year to the hospitals for treatment, so that it must be confessed that the usual treatment of psoriasis is not a brilliant success.

In spite of the cynic who stated that any new method will cure psoriasis—at first, there is no doubt that the mercury vapour lamp has proved itself a most astonishing success. This lamp, which produces a quantity of ultra-violet rays, is a most valuable adjunct in the treatment of many diseases of the skin. The probable reason for its success in psoriasis is attributable to the fact that psoriasis seems to shun those parts of the skin which are normally exposed to the rays of the sun, i.e., the face and hands. By creating an atmosphere of artificial sunlight, we are reproducing, as nearly as possible, those conditions inimical to the growth of The treatment is pleasant, generally inpsoriasis. vigorating, and does not take up too much time, the exposures to the lamp being of short duration. It is certainly the method of choice for an out-patient clinic. In the majority of cases, six exposures to the lamp's rays are sufficient to cause the scales to drop off, leaving a smooth patch which is considerably lighter than the surrounding skin; after a short time longer, no trace remains of the psoriasis. Long-standing cases require more treatments than those of recent origin, but I have yet to meet with a case that is not greatly benefited by the treatment.

Practical Notes.

Treatment of Dyspepsia in Childhood.

P. Lereboullet points out that there are definite differences between the gastric syndromes that are common occurrences in childhood, and the gastric disturbances of infancy and of adult life. In infancy the conditions that are found are rather gastro-intestinal syndromes and deserve special study, notably when they are associated with pylorospasm and pyloric stenosis. The dyspepsia of childhood is usually a functional dyspeptic syndrome, "physiological and not anatomical." Taillens has observed that of 100 dyspeptic children, 67 had hyperchlorhydria, 29 hypochlorhydria, and in 4 only the acid secretion was normal. Air-swallowing, as well as disturbance of the gastric secretions, is often found in this form of dyspepsia. A too strict dietary is not necessary; without milk, meat and eggs the normal growth of the child is impossible. What is necessary is to prescribe regularity of meals, slow eating, and sufficient mastication of the food. The following prescriptions may be found useful:—

R Sod. bicarbon. - - - g. 6-8 (3iss-5ii) Sod. phosphat. - - - g. 4 (3i) Sod. sulphat. - - - g. 2 (grs. xxx)

The above in one litre (2 pints) of cold water. Take half a wineglassful of this two or three times a day, half an hour before meals. Or the following:—

 R. Sod. brom.
 g. 3 (grs. xlv)

 Sod. bicarbon.
 g. 5 (grs. lxxv)

 Sod. phosphat.
 g. 5 (grs. lxxv)

 Sod. sulphat.
 g. 10 (5iiss)

The above in one litre (2 pints) of water. One wineglassful of this to be taken two or three times a day.—(Le Progrès Médical, March 7, 1925, p. 343.)

Treatment of Thread-Worms.

F. H. Lorentz asserts, as the result of repeated observations, that the oxyuris vermicularis develops from ova only in the anal ring. He advises that the anal region should be thoroughly washed after every stool, and states that as a result of this simple treatment he has had excellent results in eradicating thread-worms.—(Medizinsche Klinik, January 18, 1925, p. 95.)

Treatment of Erythema Nodosum.

M. Brelet discusses the nature and etiology of erythema nodosum, and comes to the conclusion that the exact cause of the disease is

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still unknown. It is certainly not always a manifestation of tuberculosis, and it may occur in the course of various septicæmic infections. Sometimes it is secondary to trypanosomiasis, or to syphilis, in which cases the treatment must be the treatment of the causative disease. The erythema nodosum of rheumatic origin must be treated with salicylate of soda. In any case, the patient should be put to bed at the beginning of the illness, which usually begins with an acute attack, dieted according to the general condition, and the affected limb or limbs wrapped up in cotton-wool. Comby has reported that when he has wrapped up one leg and not the other he has observed the erythema disappear in two or three days from the leg that was wrapped up, while it still persisted on the other. Brocq has shown that certain cases of erythema nodosum have been very favourably influenced by iodides, and Dr. Brelet recommends that potassium iodide should be given daily in cases unimproved by other treatment. The patient should be carefully watched during convalescence, as anæmia and malnutrition are frequent sequels; convalescence should be in the country or the mountains, and iron or arsenic given regularly.—(Gazette des Hôpitaux, February 21, 1925, p. 241.)

Treatment of Cancer of the Stomach.

W. Anschütz summarizes 1,156 cases of cancer of the stomach that were treated in his clinic between 1901 and 1922, and comes to the conclusion that so far as his own city and district is concerned (Kiel) gastric cancer is not increasing. In regard to diagnosis, the most important points were the presence of occult bleeding and the help that was given by bismuth meal X-ray examination. In regard to treatment, those cases treated by resection of the stomach did much better than those in which gastro-enterostomy was performed; 22 per cent. of the resection cases were alive after five years, and 21 per cent. after ten years, while after five years only from 2 to 4 per cent. of the gastro-enterostomy cases were alive. He employs gastro-enterostomy now only in those cases with extensive metastases and pronounced motor insufficiency, and such cases do not usually last more than six months.—(Münchener Medizinische Wochenschrift, January 2, 1925, p. 1.)

Treatment of Visceroptosis.

R. H. M. Hardisty points out that in the practice of every medica practitioner there are patients who are variously diagnosed as cases of gastroptosis, colonic stasis, gastric neurosis, or some such condition, who drag out a weary semi-invalid existence. Many of these individuals have visceroptosis, which is extremely common. Its treatment must be general and special. General treatment aims at the removal of the cause; in many cases the primary factor is a disordered nervous system, the result of worry and anxiety. Special treatment is directed towards the relief of symptoms. The digestion can be improved, and the muscles strengthened; suitable glasses and plantar arch supports may be necessary and may give great

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help. The patient must eat small quantities of plain food, to avoid overloading the stomach, and to facilitate the passage through the intestine; fats should be eaten sparingly, as their digestion is slow and they do not agree with these patients, but carbohydrates are usually well borne. Meals should be taken dry, and water drunk only on rising or retiring, or between meals, and the patient should lie down for an hour after the principal meal. Some preparation of paraffin may be necessary as a laxative. Clothing should be arranged to avoid any downward drag on the abdomen. patient must be taught exercises designed to strengthen the abdominal muscles, and to knead the bowels and their contents. Strapping of the abdomen, or some light abdominal support which can be snugly adjusted, increases intra-abdominal pressure and gives these patients a feeling of solidity and sense of support. No one type of belt is suitable for all cases, but it should be light, easily adjusted, and fitted to the individual. Some patients are but slightly relieved by these measures, and in them surgery semetimes does good, such as the raising and fixing of the cæcum in the iliac fossa .- (Canadian Medical Association Journal, February, 1925, p. 158.)

Treatment of Neurosyphilis.

G. Marinesco and S. Draganesco state that the only treatment that has any hope of treating neurosyphilis successfully is the combination of subarachnoid injections with intravenous injections of neosalvarsan. They employed the method associated with the name of Gennerich in 85 patients, suffering from general paralysis, tabes, and cerebral syphilis. From 50 to 120 c.cm. of the cerebrospinal fluid was withdrawn, from 1 to 1.8 mgm. of neosalvarsan was mixed with two-thirds of the quantity of the fluid, and this was reinjected. On the following day an intravenous injection of neosalvarsan was given. These subarachnoid and intravenous injections were repeated four or five times at suitable intervals, and distinct improvement was noted in a large proportion of the cases.—(Presse Médicale, January 31, 1925, p. 130.)

Dermatitis due to Dyed Fur.

A C. Roxburgh publishes an analysis of 86 cases of dyed fur dermatitis treated in the skin department of St. Bartholomew's Hospital during the past two winters. Parsons has come to the conclusion, as stated in his Ministry of Health Report, No. 27, that a partially oxidized derivative of para- or meta-phenylene diamine left in the fur owing to imperfect cleansing after dyeing, is the culprit in the majority of cases. Dr. Roxburgh mentions the interesting point that the patients had worn their furs for a considerable period, six to ten weeks, before the appearance of the rash. This latent period is due, he suggests, to the gradual development of a sensitiveness to the irritant. As regards treatment, the patients were all advised to get rid of the offending furs, and were treated with zinc oxide paste or cream as a local

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application.—(British Journal of Dermatology and Syphilis, March, 1925, p. 126.)

Treatment of Eclampsia.

K. M. Wilson has come to the conclusion, as the result of his experience in the Johns Hopkins Hospital during the past twelve years, that in the treatment of eclampsia those cases do best which are subjected to a minimal amount of obstetric interference. The end-results in the treatment of ante- and intra-partum eclampsia are twice as good under conservative as under radical treatment, and the performance of cæsarean section as a routine procedure is, in the author's opinion, to be discouraged. His patients are placed in a quiet, darkened room, and are disturbed as little as possible. A hypodermic injection of gr. 1 of morphia is given at once; this may be repeated if indicated by undue restlessness or repeated convulsions, but not more than one-half grain is given in the first twenty-four hours. The patient is kept turned on one side with the foot of the bed elevated as long as coma persists. Mucus is swabbed from the pharynx as it collects. Venesection is performed after the second convulsion, under nitrous oxide if necessary; 1,000 c.cm. of blood are withdrawn, unless the systolic bloodpressure falls below 100 mm., or the pulse-rate shows any alarming change during the process. Water is given freely, as desired, when the patient is conscious. Those who cannot drink, on account of coma, are given 500 c.cm. of 5 per cent. glucose solution intravenously, which may be repeated in twelve hours. A special nurse is in constant attendance until the patient is permanently out of coma. No attempt is made at delivery until the cervix is fully dilated, unless some definite material indication, apart from the eclamptic condition, is present.—(American Journal of Obstetrics and Gynecology, February, 1925, p. 189.)

Treatment of Acne with X-Rays.

L. K. McCafferty and C. Lee McCarthy state that in the treatment of acne vaccine therapy has had its day, and that the experience of the past few years has taught dermatologists that X-rays are the most successful local agent. The acne bacillus, however, is present on every normal skin after puberty, and the characteristic lesions of acne are usually found in individuals whose normal resistance has been lowered; it is unwise, therefore, say the authors, to rely exclusively upon X-rays to eradicate permanently a condition which is initiated probably by constitutional derangement. The average number of X-ray treatments, in the 80 cases reported by the authors, was 16; that is, exposure weekly to one quarter unit doses for sixteen weeks. Occasionally it was necessary to give a one-quarter unit to each cheek and one-eighth unit to the front of the face. After treatment, the skin was never so oily as formerly, and in two patients a dryness became evident after eight and ten treatments respectively. One should always be on the watch, during a course of treatment, for an erythema, and if erythema be noticed all treatment should be suspended for at least three weeks

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J. Homans makes a convincing plea for the treatment of varicose ulcer by operative methods. He divides varicose ulcers into two classes, distinct in many ways: in the first class are the ulcers dependent upon the common superficial varicose vein; in the second class are the ulcers secondary to thrombo-phlebitis. ulcers of the first class are usually found riding upon or at the foot of a large varicose vessel; the ulcers of the second class, not infrequently multiple, are seldom obviously related to visible veins, and may appear in unusual positions. The appearance of the ulcers themselves may be precisely alike; it is the veins that are different. Ulcers associated with simple varix are cured as a rule by thorough excision of the varicose veins; if they are very old and indurated, excision of the ulcer must be added to excision of the veins; the deep fascia behind an ulcer should always be removed with it. It is wise to inform patients suffering from post-phlebitic ulcer that they may require more than one operation, and may have to spend many weeks in hospital. That their ulcers should be permanently cured sometimes seems impossible, but that they will be improved, made comfortable, and perhaps cured may safely be stated. The patient is kept in bed until the maximum improvement in the inflammatory reaction appears to have been obtained; it is not necessary that the ulcer should have healed during this period. The great saphenous vein is then removed down to the upper limit of the ulcerated area. The area of ulceration is then excised, taking with it in one mass the veins and deep fascia behind; this excision disregards altogether the possibility of exposing bone, tendonsheath, and muscle. The exposed area may then be covered with a Thiersch skin graft, which is likely to be successful if the ulcer has been cleanly excised in one block so that the freshly exposed tissues are unsoiled and their surface dry. Should the reverse be the case the area may be treated with Dakin's solution, or other antiseptic dressing, until it has granulated, when a delayed graft is made. This treatment will cure many cases, but sometimes more is required; when the patient resumes an active life, breaking down of tissue about the graft may occur, and further excisions and grafts may be necessary .- (Boston Medical and Surgical Journal, February 26, 1925, p. 379.)

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1923, and November, 1924, 53 unselected patients suffering from general paralysis were treated in this way; 11 of these were treated too recently to allow of an expression of opinion; 2 received a course of malaria on two separate occasions, and one failed to acquire the infection after repeated inoculation. Of the 39 patients remaining, 7 died during or soon after treatment; and of the 32 patients still alive 14 are either unimproved or more or less improved, while 18 are much improved; 17 of these patients have been discharged from the psychiatric hospital, and 14 have returned to their former occupations. These results lead the authors to believe that the treatment of general paralysis with malaria is unquestionably a method of value, while the proportion of cases in which the disease appears to have been brought to a standstill, as judged by clinical criteria, in addition to the proportion in which a striking degree of mental improvement comes about, is also of significance.—(Journal of the American Medical Association, February 21, 1925, p. 563.)

Treatment of Senile Gangrene.

L. Ramond points out that, although when once gangrene is established little can be done beyond preventing sepsis, unless amputation is necessary, in the pre-gangrenous stage treatment should be directed towards preventing thrombosis and the contraction of the blood-vessels, and easing the pain in the limb. Sodium citrate, 10 to 15 grams (3iiss to 3iv) a day should be given by the mouth, not intravenously, as has been recommended, as fatalities have been reported. This, and the application of leeches, which liberate a certain quantity of hirudinine into the blood, will help to prevent thrombosis. To prevent contraction of the blood-vessels lipiodol should be injected intramuscularly, 3 c.cm. every five days; sodium citrate may be alternated with potassium iodide, each for a fortnight at a time. The following prescription may also be found useful:—

R. Sod. nitrit. - - - g. 0·20 (grs. iii)

Potass. nitrat. - - - g. 2 (grs. xxx)

Potass. bicarbon. - - g. 4 (3j)

Aq. destill. - - - g. 200 (3iii)

To be given every morning for ten days. Aerated baths and high frequency or galvanic currents are also valuable. For the pain, aspirin and opiates should be given.—(Journal des Praticiens, March 28, 1925, p. 217.)

Local Treatment of Sciatica.

F. Högler recommends, for the treatment of sciatica, the perineural injection of antipyrin, 4 grams (3j) in 10 c.cm. of distilled water, with a little novocaine added; he describes his technique fully. This, he states, has sometimes alleviated the most intractable pains of sciatica.—(Wiener Klinische Wochenschrift, January 15, 1925, p. 94.)

Reviews of Books.

Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas.
Revised by Lieut.-Col. W. P. MacArthur, D.S.O., O.B.E.,
M.D., R.A.M.C. Fourth edition. Pp. 275. London: His
Majesty's Stationery Office. 2s. 6d. net.

In this handbook an excellent survey of tropical medicine is provided and the information is remarkably full and up to date. The various parasitic organisms are fully dealt with, and a feature of the book is the number of excellent figures and plates of arthropods and parasites. As regards the diseases described, a summary of clinical features is given with points of diagnosis, treatment and prophylaxis. Many representative temperature charts are included. Altogether this is a very handy and serviceable book for the medical officer going abroad.

Forensic Medicine. A text-book for students and practitioners. By Sydney Smith, M.D., D.P.H. With an introduction by Prof. Harvey Littlejohn, F.R.C.S., F.R.S.E. Pp. xiv & 498. London: J. and A. Churchill. 21s. net.

Professor Smith follows well-established lines in dealing with his subject, and his book does not contain any strikingly new contributions, but the chapters on injuries and death from various forms of violence are full and informative, as indeed might be expected from one who has been trained in Edinburgh under its present professor of Forensic Medicine. The chapter on bloodstains is excellently written, and the clinical observations on such matters as rape and abortion are sound and helpful. On the purely legal side the author is clearly less familiar with his subject, and, indeed, has been betrayed into a few errors. A coroner is not now required to sit with a jury, and an inquest verdict does not determine whether or not a person implicated shall appear before a magistrate; there is no legal obligation upon a practitioner to observe secrecy in professional matters, and there is no such thing as an "action for breach of professional confidence"; a surgeon is not necessarily held responsible for damage resulting from leaving a swab in the abdomen; in dealing with offences against young girls the author has failed to note the changes made by the Criminal Law Amendment Act of 1922. The book is profusely illustrated.

An Introduction to School Medicine. By H. LESLIE CRONE, M.A., M.D., D.P.H. Pp. 236. London: H. K. Lewis & Co., Ltd. 7s. 6d. net.

This book is out of the common in that it deals with the minor departures from health of school children and, as such, is what it pretends to be, viz., an introduction *only* to school medicine and school hygiene. The book is in no way intended to compete with

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To be given every morning for ten days. Aerated baths and high frequency or galvanic currents are also valuable. For the pain, aspirin and opiates should be given.—(Journal des Praticiens, March 28, 1925, p. 217.)

Local Treatment of Sciatica.

F. Högler recommends, for the treatment of sciatica, the perneural injection of antipyrin, 4 grams (5j) in 10 c.cm. of distilled water, with a little novocaine added; he describes his technique fully. This, he states, has sometimes alleviated the most intractable pains of sciatica.—(Wiener Klinische Wochenschrift, January 15, 1925, p. 94.)

Reviews of Books.

Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas. Revised by Lieut.-Col. W. P. MacArthub, D.S.O., O.B.E., M.D., R.A.M.C. Fourth edition. Pp. 275. London: His Majesty's Stationery Office. 2s. 6d. net.

In this handbook an excellent survey of tropical medicine is provided and the information is remarkably full and up to date. The various parasitic organisms are fully dealt with, and a feature of the book is the number of excellent figures and plates of arthropods and parasites. As regards the diseases described, a summary of clinical features is given with points of diagnosis, treatment and prophylaxis. Many representative temperature charts are included. Altogether this is a very handy and serviceable book for the medical officer going abroad.

Forensic Medicine. A text-book for students and practitioners. By Sydney Smith, M.D., D.P.H. With an introduction by Prof. Harvey Littlejohn, F.R.C.S., F.R.S.E. Pp. xiv & 498. London: J. and A. Churchill. 21s. net.

PROFESSOR SMITH follows well-established lines in dealing with his subject, and his book does not contain any strikingly new contributions, but the chapters on injuries and death from various forms of violence are full and informative, as indeed might be expected from one who has been trained in Edinburgh under its present professor of Forensic Medicine. The chapter on bloodstains is excellently written, and the clinical observations on such matters as rape and abortion are sound and helpful. On the purely legal side the author is clearly less familiar with his subject, and, indeed, has been betrayed into a few errors. A coroner is not now required to sit with a jury, and an inquest verdict does not determine whether or not a person implicated shall appear before a magistrate; there is no legal obligation upon a practitioner to observe secrecy in professional matters, and there is no such thing as an "action for breach of professional confidence"; a surgeon is not necessarily held responsible for damage resulting from leaving a swab in the abdomen; in dealing with offences against young girls the author has failed to note the changes made by the Criminal Law Amendment Act of 1922. The book is profusely illustrated.

An Introduction to School Medicine. By H. LESLIE CRONK, M.A., M.D., D.P.H. Pp. 236. London: H. K. Lewis & Co., Ltd. 7s. 6d. net.

This book is out of the common in that it deals with the minor departures from health of school children and, as such, is what it pretends to be, viz., an introduction only to school medicine and school hygiene. The book is in no way intended to compete with

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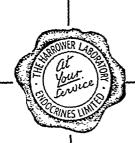
the many hundreds of books already published on diseases of infants

and children and on school hygiene.

With this understanding, the book can be, with confidence, recommended to school medical officers and others interested in or connected with school medicine, consisting of inspection and treatment of, and, last, but not least, prevention of disease and illness in, school children. The book is well arranged under sixteen chapters, dealing with (1) growth; (2) malnutrition; (3) food requirements; (4) sleep; (5) the teeth of childhood; (6) pediculosis; (7) the eyes, and defects of vision; (8) defects of the nose; (9) the tonsils (function. infection, and hypertrophy); (10) ears; (11) tuberculosis in childhood; (12) postural deformities; (13) infectious diseases; (14) circulatory defects; (15) functional tests; and (16) conclusion. A useful index is added, but, strange to say, no mention is made therein of the word "Vitamins," though the subject is dealt with on pp. 41, 42, 43, in chapter 3; or of the words "Schick test," dealt with on pp. 193, 194, 195, 196, 197, in chapter 13. These, however, are small matters that can be readily altered in future editions, and do not detract from the general value of the book for assistant school medical officers, for whom it is chiefly written by an assistant school medical officer of experience.

Acute Infectious Diseases. A handbook for practitioners and students. By J. D. Rolleston, M.A., M.D. Pp. 376. London: William Heinemann, Ltd. 12s. 6d. net.

Dr. Rolleston's long experience of infectious diseases and numerous contributions to the literature of the subject have equipped him very thoroughly for the task which he has undertaken and which he has carried out in a very satisfactory manner. There may be some difference of opinion as to whether he is right in dispensing entirely with illustrations. There is much to be said for discarding photographs, but we think the student is distinctly assisted by the provision of well-chosen temperature charts. Probably, however, the book will appeal less to the student than to the practitioner of some experience. It will have its chief value as a book of experience, for its author's knowledge of the literature and acquaintance with the incidence of the more unusual complications must surely be unrivalled. None the less the clinical and more practical aspects of the subject are thoroughly and carefully discussed, and the advice given as regards treatment is sensible and safe to follow. The book is well up to date; for instance, an account is given of the recent work on the hæmolytic streptococcus as the causative organism of scarlet fever, and the Dick and Schulz-Charlton tests. We can most cordially recommend it to all interested in the subject and especially to those on the staffs of fever hospitals, who will find themselves provided with a most admirable bibliography of all the principal infectious diseases and at the same time most interesting records of the personal experience of a very careful observer.



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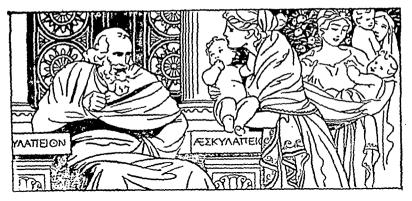
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- ELLIOTT, T., M.B., Ch.B.Leeds, appointed Certifying Factory Surgeon under the Factory and Workshop, Acts for the Misterton District of the County of Nottingham,
- ELLIS, H., M.B., B.S.Lond., D.P.H., appointed Assistant Medical Officer of Health for Ealing.
- EWING, A. W., M.R.C.S., L.R.C.P., appointed Certifying Factory Surgeon for the Buntingford District, Co. Hersford.
- FFRENCH, ERNEST G., M.D., F.R.C.S.E., M.R.C.P.Lond., appointed Dermatologist to the London Temperance Hospital.
- FOOTE, ROBERT, M.R.C.S., L.R.C.P., appointed Assistant Resident Medical Officer to Queen Charlotte's Maternity Hospital, Marylebone Road, N.W.1.
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- HALL, PERCY, M.R.C.S., L.R.C.P. Lond., appointed Hon. Actino-therapist to the Mount Vernon Hospital.
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- McCREA, E. D'ARCY, M.B., B.Ch.Dub., appointed Surgical Registrar to Salford Royal Hospital.
- MacDONALD, J. R., M.B., Ch. B.Ed., appointed Medical Officer to the Durham Board of Guardians.

- Macilraith, W. M., L.R.C.P., L.R.C.S.Ed., D.P.H.Manch., appointed Medical Officer to Kirkden, Kinnell and Guthrie Parish Councils and P.O. Friockheim, and Factory Medical Officer to Priockheim and District
- MacLENNAN, N. M., M.B., Ch.B. Aberd., D.P.H., appointed Assistant Medical Officer of Health, Woolwich.
- McMILLAN, KENNETH, F.R.C.S. Eng., appointed Hon. Surgeon to the Birmingham and Midland Hospital for Women, and Hon, Assistant Surgeon to the Birmingham Maternity Hospital.
- MARTIN, BASIL W., M.B., B.Ch., appointed Regional Medical Officer to the Ministry of Health.
- MOORE, FREDERICK CRAYEN, M.Sc., M.D., F.R.C.P., appointed to the Chair of Systematic Medicine in the University of Manchester.
- MYLES, D., M.B., Ch.B.St. And., appointed Medical Officer, Forfar Parish Council.
- RAE, HARRY J., M.B., Ch.B.Aberd., D.P.H., appointed Chief Medical Officer of Health for Aberdeenshire.
- SAUNDERS. ROY M., M.B., Ch.B., appointed Assistant Resident Medical Officer to Queen Chatlotte's Maternity Hospital, Marylebone Road, N.W.I.
- SINCLAIR, A. H. H., M.D.. appointed Medical Referee under the Workmen's Compensation Act for the districts of Edinburgh City, Midlothian County, Haddington County, Linlithgow County, and Peebles County for Ophthalmic Cases,
- STORY, A. J., M.A., M.B., B.Ch., appointed Resident Medical Officer to Queen Charlotte's Maternity Hospital, Marylebone Road, N.W.1.
- STOUT, A.J., M.B., Ch.B.Ed., appointed House Surgeon to Salford Royal Hospital
- THACKRAY. C., M.D., B.S.Lond., appointed Medical Superintendent of St. Pancras Guardians, Highgate Infirmary.
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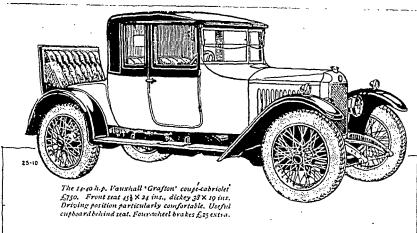
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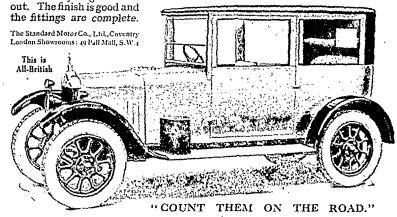
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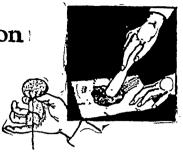
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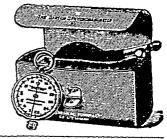
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have been prescribed with uniform success for over 30 years. Distilled from carefully selected Mysore Sandal Wood, the oil is bland and remarkably THE IRRITANT AND NAUSEATING EFFECTS which are provoked by many preparations. FROM

There is marked absence of Gastric and other disturbances, diarrhoea and skin Its mild chemotactic properties permit its administration in relatively eruptions. large doses without year of too violent reaction or intolerance.

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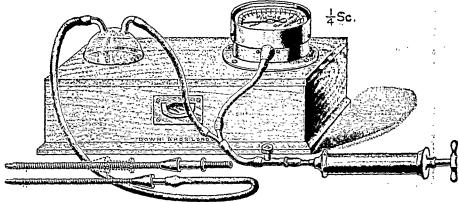
Putrefactive bacteria increase in numbers in the intestine as age advances. They are relatively scanty in the young child, but after middle life are usually present in considerable numbers. Of the micro-organisms concerned, proteolytic anaërobes are probably the most important.

In individuals with a normal intestine and free evacuations they may do little harm, but in those subject to intestinal catarrh these putrefactive bacteria become more numerous and active, their products are formed in greater quantity and are more freely absorbed and the condition of alimentary toxemia results. The manifestations of this state are very protean; e.g., 'heumatic' conditions, digestive upset, neurasthenia, and neuralgias, increased blood pressure and its complications, and many others. The treatment, in the first place, obviously should be intestinal disinfection. For this purpose nothing surpasses the use of KEROI, CAPSULES. They have solved for years the question of disinfection of the alimentary tract. They definitely reduce the bacterial content of the intestine, as shown by the reduction in b. coli by 99% when the Capsules are regularly administered for a period of from seven to ten days.

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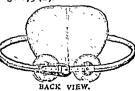
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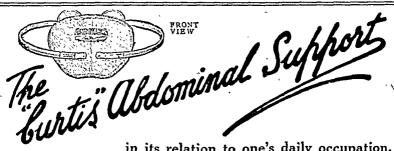
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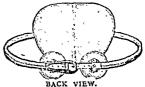
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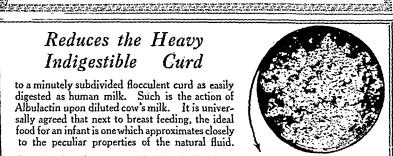
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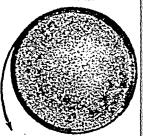
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Reduces the Heavy Indigestible Curd

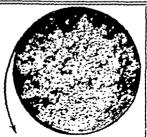
to a minutely subdivided flocculent curd as easily digested as human milk. Such is the action of Albulactin upon diluted cow's milk. It is universally agreed that next to breast feeding, the ideal food for an infant is one which approximates closely to the peculiar properties of the natural fluid.

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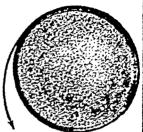


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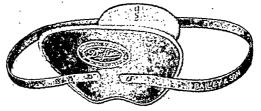
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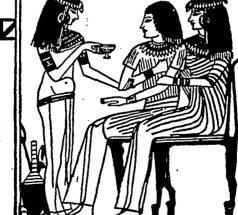
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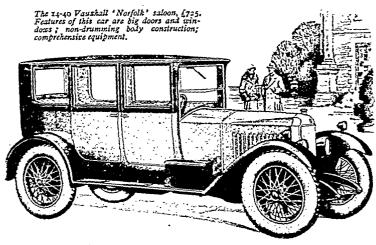
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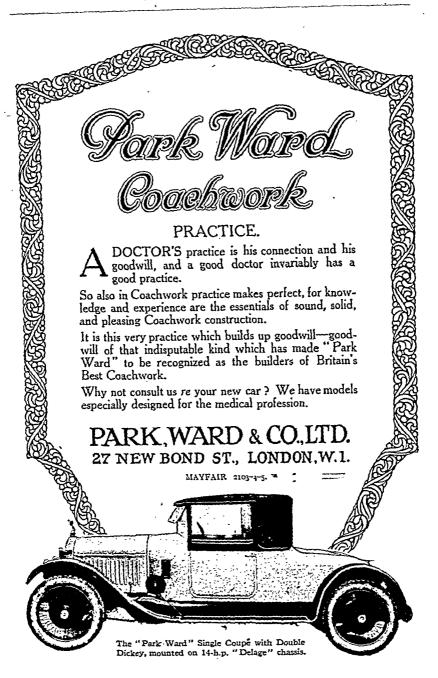
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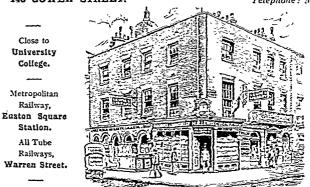
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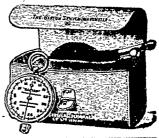
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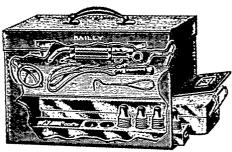
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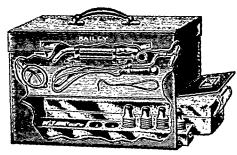
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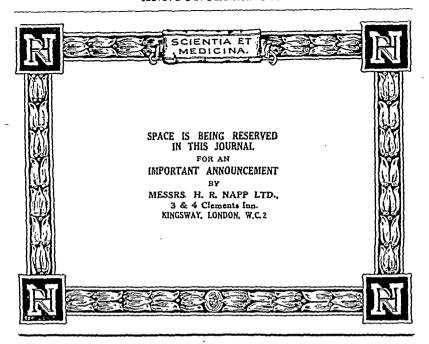
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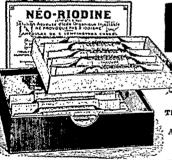
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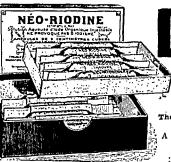
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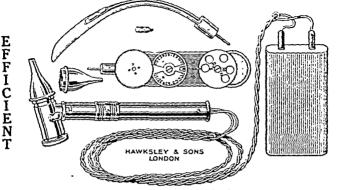
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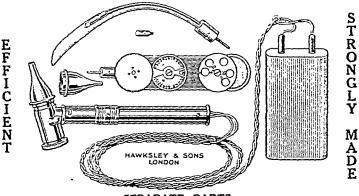
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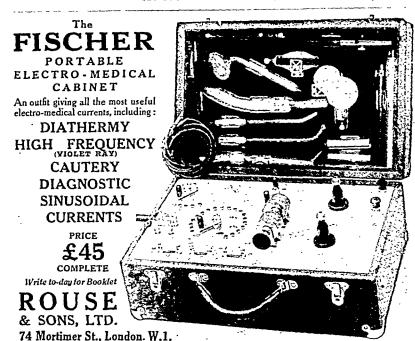
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Male cotton

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Time of onset of 25% point of fatigue in workers who had taken Sanatogen for 14 days.

Male cotton Gain in hours accribed to Sanatogen operatives 5'8 1'6

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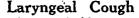
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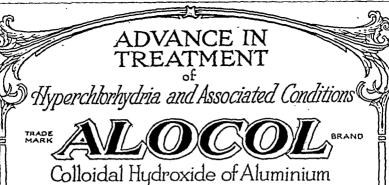
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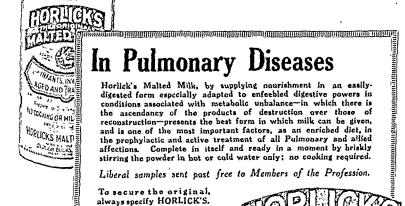
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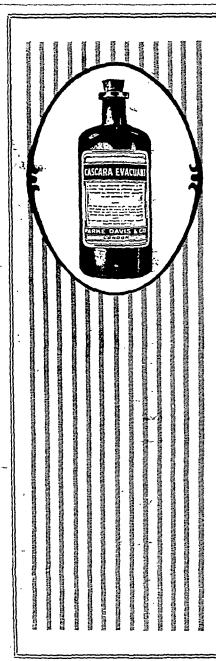
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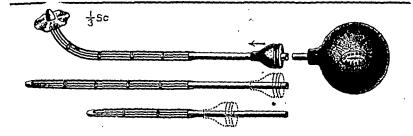
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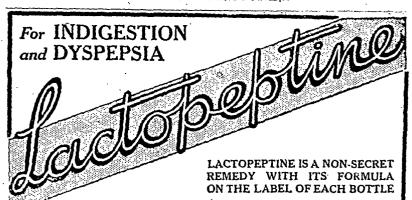
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APRIL 1925

Meddlesome Midwifery.

BY SIR HENRY SIMSON, M.B., F.R.C.S.E., M.R.C.P.

Surgeon to the Hospital for Women, Soho Square, W.; Obstetric Surgeon to the West London Hospital; Examiner in Obstetrics and Gynæcology, Conjoint Board, England, and University of Leeds.

HENEVER the question of puerperal infection is raised it is interesting to note how often the discussion is concentrated merely on how to prevent infection during the process of parturition. It is argued that the great safeguards against puerperal infection are to keep the fingers out of the vagina during labour, never to make a vaginal examination unless absolutely driven to it, and to avoid forceps delivery until uterine inertia is setting in. The truth of the matter, however, is that the application of forceps for inertia is a proof of bad obstetrics, forceps being one of the means at our disposal for preventing inertia.

The thoroughly sound teaching against frequent vaginal examination may, of course, be safely applied to normal labour, but before it can be applied the doctor or midwife must be certain that the labour is a normal one. It is therefore necessary to understand the term "normal labour" and, incidentally, "normal pelvis."

If by a normal labour is meant one in which a woman

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APRIL

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delivers herself unaided and produces a living child, and that a primipara must expect to "go twice round the clock," as is so often said, then possibly 75 per cent. of primiparæ have normal labours. But if by normal labour is meant one in which the fœtal head comes through the birth canal with the minimum amount of moulding and the occiput is to the front; in which the membranes remain intact until the os is fully dilated, and there is neither too much nor too little liquor amnii; in which there is no rigidity of the cervix, and the anterior lip of the cervix does not come down in front of the occiput towards the end of the first stage of labour; in which complete flexion takes place and one of the hands is not close under the chin; in which the cord is not round the neck; in which the second stage does not last much over two hours; and in which the pains are regular and satisfactory throughout, with no short ineffective pains at the commencement, which simply prevent the patient from resting but have little effect on the dilatation of the cervix, then less than 25 per cent. of primiparæ have normal labours.

What is meant by the term "normal pelvis"? Generally speaking, the word "normal" is understood to mean "that which is to be expected in the great majority of cases." But in connection with the female pelvis, the word "normal" only means that if a pelvis measures 10 in. at the spines, 11 in. at the crests, has an internal conjugate of 4 in. and an outlet of 4 in., then a feetus weighing 8 lbs. or under, can be born with the minimum amount of moulding if the fœtal head has a circumference of 12 in., and the presentation is vertex L.O.A., or R.O.A. In actual practice it is to be feared that a combination of the second description of normal labour and the so-called normal pelvis only occurs in some 15 per cent. of prima gravidæ. If they do occur, then a primipara should deliver herself unaided in about twelve to fourteen hours, the second stage

MEDDLESOME MIDWIFERY

lasting about two hours; and a multipara should deliver herself in from six to eight hours, with a second stage of from three-quarters to one and a-quarter hours. And they should both, within twelve hours of delivery, have emptied the bladder, fed the baby once, and be able to sit up in the Fowler position propped up with pillows.

This is an ideal which ought to be aimed at, and it is essential that every person who undertakes to attend a confinement should be capable of bringing the patient "to bed" at a time and under conditions which will allow labour to proceed as nearly normally as possible, and during labour should be capable of diagnosing and at the proper time correctly treating the infinite variety of minor complications which make labour depart from the true normal. It is a truism to say that the nearer labour approaches normal, the less likely is there to be an infected puerperium.

For the last two generations women have been waking up, and pregnant women, with growing insistence, have been asking their medical advisers two questions. The first is, "Will you prevent my having any pain?" The second is, "Am I going to have a bad time?" meaning by this a "long labour."

The latest answer to the first question is "Twilight sleep," and the medical profession has answered the second question by evolving the ante-natal clinic. There is not the slightest doubt that if every primagravida had efficient ante-natal observation, puerperal complications would be diminished by at least 50 per cent.

All medical men and women practising obstetrics are placed in a very enviable position with regard to their work. The previous medical history of the patient is known. The "doctor" is nearly always informed or consulted within eight or nine weeks from the beginning of a pregnancy. There are therefore seven and a half

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benefit of a bottle of chloroform—and as to the mother and child, the less said the better.

These instances could be cited by the dozen, but it is impossible to over-estimate the absolute necessity for careful ante-natal examination, or the advantages to the mother and child, not only during labour, but also during the puerperium, especially in all primiparæ.

Ante-natal observation, however, means time, and time means money, and if a pregnant woman is unable adequately to remunerate her medical attendant for observation all through her pregnancy, she ought to attend an ante-natal clinic financed by the Ministry of Health. The management of labour does not commence with the pains of labour but from the very first moment a woman enters a doctor's consulting room and says, "Will you attend me in my confinement?"

Having, however, arrived at the time of parturition, it is necessary to conduct the management of the actual process of birth so that (a) minor complications which tend to lengthen labour may be diagnosed and dealt with before they begin to exhaust both the mother and the uterine muscle, and (b) at the same time accede to the mother's request to lessen, as far as possible, the pain.

It is surely unnecessary to state that *surgical* cleanliness is essential. Anyone who has developed a surgical conscience must know how this may be applied to the first stage of labour; and during the second stage the patient must lie on a sterilized accouchement sheet, and a tin of sterilized towels, leggings, swabs, gloves and gowns must be provided, just as in every other surgical operation. The progress of labour is uncertain, and at any time may develop into obstetric surgery.

It is interesting to compare the drugs we have at our disposal for use during labour with the stages and management of labour itself.

The first stage of labour is a slow process; the pains

to eight invaluable months in which to watch the progress of that pregnancy, and the attitude of mind during that time should be one of intelligent anticipation, and not that of the ostrich with its head in the sand, hoping for the best.

To mention only a few instances when intelligent anticipation may be of enormous help. A primipara comes up for examination at the ninth week; on making a vaginal examination it is noted that she is very sensitive; only one finger can be inserted, and even that is resisted. On reaching the cervix, it is found to be high up and longish, not typically soft as is found in early pregnancy, and the external os is small. It is morally certain that the first stage of labour is going to be a long one, will be complicated by a rigid cervix, and that when the head begins to stretch the perineum the patient will tighten up the gluteal muscles and suffer, or appear to suffer, agonizing pain.

Then, if in the early months a woman has had one or two slight losses, severe enough to be a threatened miscarriage, it is justifiable to anticipate some difficulty with the third stage of labour, and preparations can be made beforehand for dealing with those difficulties.

Again, a breech presentation is diagnosed at the thirty-fourth week. It is still present at the thirty-eighth week. An attempt is made to turn it into a vertex, but fails. How much more satisfactory it is to have an X-ray photograph taken and extended legs diagnosed, than to wait until the second stage of labour to diagnose the condition by putting a hand into the uterus.

In the first instance the patient is sent to a nursing home or hospital, and when serious delay occurs a timely Cæsarean section would certainly produce a living child and happy mother, while in the second case a very difficult obstetric operation may have to be performed at 4 o'clock in the morning, with the help of a midwife, the assistance of a mother-in-law, and the

MEDDLESOME MIDWIFERY

the position may or may not be occipito-posterior. At the end of twelve to fourteen hours the cervix is twothirds dilated, the anterior lip beginning to become cedematous, a caput is forming on the feetal head, the pains are short, frequent and distressing, the temperature is normal, and the pulse rate 90. There are four methods of dealing with the condition:—

- (1) The method of the old Irish countess, who says, "Child-birth is a painful process, and we have no business to interfere with the Almighty; get on with it, my dear."
- (2) The kind-hearted mother who says, "Please doctor, can't you give her a little chloroform when she has the pains?" a method mentioned merely to be absolutely condemned, as it carries in its wake inertia, retained placenta, post-partum hæmorrhage, and indeed, in many well-established cases, chloroform poisoning during the puerperium.
- (3) The continued administration of narcotics until the os is fully dilated—which may not occur for six hours or more—and the risk of an exhausted uterus and patient when the second stage does arrive.
- (4) Manual dilatation of the cervix under chloroform, which is best done by passing the cone-shaped hand gently through the cervix, closing the fist in the lower uterine segment, gradually withdrawing and gently squeezing the fist as it gets caught at the partially dilated os. A cervix can be dilated by this means, without any tearing, in about ten minutes. When dilatation is complete, the occiput can be rotated if posterior, and the sinciput flexed, and by suprapubic pressure the head made to engage again. The supra-pubic pressure can be kept up until the patient begins to come round from the anæsthetic, which will be in about another ten minutes, and then 1 c.cm. of pituitary extract given. The second stage has

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do not rapidly follow each other with increasing intensity, as in the second stage, and the os is very gradually dilated. Compared with this, the second stage proceeds rapidly, and quickly comes to an end with the birth of the child. Narcotics, such as opium, omnopon, heroin and hyoscine, gradually produce an effect which, once established, is prolonged for some hours. Anæsthetics, on the other hand, act almost immediately, and, once they are discontinued, the effect passes off rapidly.

Both groups of drugs finally produce uterine inertia, the former slowly, the latter rapidly; but to combat this we can give ergot by the mouth, which has a prolonged action, and pituitary extract hypodermically, which acts rapidly but for no great length of time.

With the help of these drugs, an obstetric training, and a surgically-clean conscience, much can be done to assist Nature to conform to the ideal labour already described.

The whole object of the obstetrician during the first stage of labour is to conserve the "powers" for the expulsive efforts of the second stage, and a judicious administration of hyoscine and morphia is eminently suitable for the purpose. It is not at all necessary to aim at producing "amnesia" with hyoscine; one or two injections in a first stage of twelve hours will keep the patient comfortable. It is, however, absolutely essential to examine the condition of the cervix before giving each injection. Narcotics should never be given after the cervix is three-quarters dilated, the dangers being a narcotized child and narcotic inertia during the third stage.

There are many ways in which the first stage of labour may depart from the "Ideal normal," but one very common one may be dealt with in detail, namely, premature rupture of the membranes in a primipara;

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before this happens, but as long as the cord is free and pulsating there is no hurry, although the child may get rather blue. Often the child may be seen to make inspiratory effort while the trunk is still in utero.

After the birth of the child, the uterus is left severely alone for a quarter of an hour to twenty minutes. The uterine muscle requires a period of rest, and it should get it; and experience has shown that the administration of pituitary extract before the birth of the child, coupled with a second stage limited to two hours, and masterly inactivity during the third stage, is always followed by excellent results. The placenta is in the vagina usually within twenty minutes, always within half an hour, and post-partum hæmorrhage is practically unknown. If after the birth of the placenta the uterus is inclined to be flabby, ergot, or ernutine, should be administered by the mouth, in preference to pituitary extract.

An obstetrician ought never to be afraid of making a vaginal examination. If he finds the anterior lip coming down in front of the head at the beginning of the second stage he will want to push the lip up with each pain, until it has disappeared—and unless he makes an examination early in the second stage he cannot diagnose this very common and extremely painful departure from the normal.

The aim of all persons attending confinements should be, by careful ante-natal observation, to exclude any gross abnormality before labour, and, by the help of narcotics, anæsthetics, uterine stimulants and a surgically clean conscience, to assist Nature when minor abnormalities occur during labour.

begun, and that will not last more than two hours. This method has much to recommend it as an eminently surgical procedure.

In the ideal labour the second stage does not last more than two hours; if it does, something is wrong, e.g., a large head, incomplete flexion, the cord round the neck, a hand under the chin, or the uterine muscle is beginning to tire.

There is much to be said for aiming at a two-hour second stage, and the following method has been recommended. When and not until the os is fully dilated, the patient is given chloroform through a junker inhaler (not on a handkerchief or mask) with each pain. The time is noted, and the interval which elapses before the next pain begins is also carefully noted. In about an hour it is usually found that the pains are beginning to get a little less frequent and less strong; but if at the end of an hour and a half the head is not beginning to stretch the perineum, 1 c.cm. of pituitary extract is given. It takes pituitary extract about a quarter of an hour to produce its full effect, and this effect will last about a quarter of an hour. If the head is not born by that time, forceps are applied under chloroform anæsthesia, and traction applied between the pains, and a two-hour second stage is the result.

The medical attendant remains in the room the whole of the time. During the first hour, all instruments—forceps, intra-uterine douches, needles, etc.—are boiled, and everything surrounding the patient is made surgically clean. It is best to be prepared for anything, and not to have to hurry boiling forceps and intra-uterine douches because the condition of the patient calls for haste.

After the birth of the head, by forceps or otherwise, no more chloroform is given, and no attempt should be made to deliver the shoulders until there is a strong uterine contraction. Sometimes it is ten minutes

of the ductless glands, there are many examples of the slighter degrees of increased or diminished secretion which cannot fail to be detected by the practised eye.

Disturbed correlation of the duciless glands is one of the most important causes of sterility in the human female.

Many obscure problems which have resisted solution for years are thus capable of explanation. What is recognized clinically in so many of those who seek treatment for sterility is that they are suffering from what may be fermed "ovarian inadequacy." This is evidenced by alteration in the quantity and character of the menstruation, such alteration either being acquired or having existed since puberty. In some there is scanty or irregular menstruation continuing after marriage with consequent sterility unless suitable treatment be employed. In others the menstrual irregularity improves or disappears as a result of erotic excitement, whilst again in others menstrual irregularity develops after marriage quite apart from detectable pathological lesions.

For these reasons it is most important to ascertain what effect, if any, has been produced by marriage on the quantity, character, and duration of the menstruation in those who seek advice on account of their sterility.

Much of the work connected with the ductless glands is still in the experimental stage, and many speculative theories have been advanced from time to time. It would appear, however, that there is a close correlation between the hypophysis cerebri (pituitary body), the thyroid gland, the ovaries, and the adrenals.

The uterine mucosa swells each month into the menstrual decidua, producing a secretion which reacts on the ovary. Ovarian secretion and the corpus luteum react upon the decidua. During menstruation blood is expelled by the contracting uterus acting in response to stimuli from the posterior lobe of the hypophysis cerebri. Painful uterine contractions during men-

Female Sterility and the Ductless Glands.

By FREDERICK J. McCANN, M.D., F.R.C.S.

Senior Surgeon to the Samaritan Free Hospital for Women, London, N.W.; Consulting Surgeon to the West End Hospital for Diseases of the Nervous System, etc.

O unravel the mysteries of the action and interaction of the duetless glands is one of the most fascinating studies in the whole domain of medicine. The study of the duetless glands has shed a new light on the phenomena of menstruation, and what is still more important, more rational methods of treating menstrual disorders have been suggested and employed with success. Many of those suffering from disordered menstruation have hitherto gone to swell the ranks of the "incurables," disgusted alike with medicine and its disciples.

With the cure of the menstrual disorder there not infrequently follows a complete restoration of function, and the previously barren woman acquires the power to conceive. Authors are fond of stating that the ovaries "dominate a woman's life," but this is only part of the truth. Not only the activity of the sexual organs, but the sexual characteristics depend upon the action and interaction of the different ductless glands, as well as the physical and mental characteristics of the individual. For this reason it is necessary to determine, if possible, whether there be any evidence of defective or excessive action of one or more of the ductless glands in every individual who seeks advice for sterility.

Without exhibiting the well-known signs and symptoms of excessive or deficient secretion of one or more

of the ductless glands, there are many examples of the slighter degrees of increased or diminished secretion which cannot fail to be detected by the practised eye.

Disturbed correlation of the ductless glands is one of the most important causes of sterility in the human female.

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The uterine mucosa swells each month into the menstrual decidua, producing a secretion which reacts on the ovary. Ovarian secretion and the corpus luteum react upon the decidua. During menstruation blood is expelled by the contracting uterus acting in response to stimuli from the posterior lobe of the hypophysis cerebri. Painful uterine contractions during men-

struation—spasmodic dysmenorrhœa—are thus explained by increased activity of the posterior lobe of the hypophysis.

What are usually termed the minor disturbances associated with menstruation, to wit, headaches, vascular dilatations, enlargement of the thyroid, irritability, nervousness, depression, and other well-known phenomena, indicate the profound disturbance which this monthly function produces in the female organism. These minor disturbances are often major disturbances from the patient's point of view, and have been variously interpreted from time to time. Many can, however, be successfully treated by glandular therapy, thus proving the complex character and widespread effects of the menstrual function in the human female.

Thus it may be stated that disordered menstruation in the absence of local pathological lesions indicates some disturbance of the correlated activity of the ductless glands.

If the normal correlation be established, the sterility may be cured in spite of "treatment" too often directed along useless channels.

A healthy ovary is one capable of producing ova which can be impregnated. In some ovaries the Graafian follicles enlarge to a certain extent and do not rupture. Such ovaries are filled with cysts, and there is, in addition, thickening of the tunica albuginea. This condition has been assumed to be due to a lack of the stimulus supplied by the thyroid, and still more by the pituitary gland, but the explanation usually given is the effect produced by the thickened tunica albuginea.

Extirpation of the corpora lutea in the guinea-pig accelerates the bursting of ripe Graafian follicles, thus suggesting that the presence of corpora lutea inhibits ovulation.

Moreover, the corpus luteum of pregnancy inhibits

FEMALE STERILITY

the ripening of Graafian follicles. It must be admitted, however, that the function of the corpus luteum is not fully understood.

Atresic follicles, corpus luteum rests, and occasional corpus luteum cysts are found in ovaries where ovulation is inhibited. Again, some enlarged ovaries with an increased amount of interstitial tissue have a diminished number of Graafian follicles. Under these conditions, although the tunica albuginea is not thickened, it is assumed that ripe ova are expelled, for menstruation continues without interruption, even associated occasionally with excessive blood loss. Indeed, the occurrence of monthly abortions in such cases is explained on the assumption that the stimulating effect of the ovarian secretion, probably aided by the pituitary, overcomes the attempt of the trophoblast to imbed itself, and thus menstruation is not inhibited, and the ovum is expelled at the menstrual period or a few days later.

All such changes in the ovary may not be distributed throughout the entire organ, and experience teaches that even a small portion of functionally active ovarian tissue may be all that is necessary for successful impregnation. Moreover, the ovarian changes may not be identical on both sides; indeed, on one side the ovary may be normal. For these reasons the prognosis as regards restoration of function is much more hopeful than might be supposed.

Increased menstrual loss associated with ovarian hypertrophy has been treated by excising a wedge-shaped piece out of each ovary in order to diminish ovarian hypersecretion, but it is a procedure of doubtful value, and in the present state of our knowledge such a condition is better combated by glandular therapy.

Reference may be made to exhaustion of reproductive power in animals (and in plants), and to those examples in the human female of one child fertility,

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the menopause, whilst the removal of fat and fatforming foods may result in the production of amenorrhea, as has been observed in certain countries during the great war. All this serves to emphasize the action and interaction of the endocrine glands. Inefficient foodstuffs altering bodily metabolism may interfere with the function of the endocrines, whilst alterations in the normal cycle produced by removal of endocrine glands or the growth of new glands, like the placenta, may cause profound disturbance throughout the whole organism.

That peculiar change in the uterus first described by Sir James Simpson under the title of superinvolution is of special interest in this relation. If reference be made to the original example of this condition, as described in Simpson's work, it will be found that his patient died from tuberculosis. She was twenty years of age, and had never menstruated after her first delivery. Two years later she sought advice in consequence of amenorrhæa, and ultimately died in the hospital.

At the autopsy tubercles were found in both lungs, and in the right kidney there was a small tuberculous abscess. Ulcerations were noted in the small intestine, the large intestine, and the stomach. The uterus was very small and atrophic, with thin walls. The length of the uterine cavity from the os to the fundus was not more than one inch and a half. The tissue of the uterus appeared dense and fibrous. The ovaries were much atrophied and smaller than natural; their tissue was dense and fibrous, and presented no appearance of Graafian follicles. There was no inflammatory deposit in the peritoneal surface of the uterus or its appendages; but there was some thick pus or tubercular matter in the distended cavity of the right Fallopian tube.

Such is the story of the "case" on which the whole theory and description of superinvolution has been

where in the absence of detectable causes subsequent pregnancy has not supervened. The study of the ductless glands here again furnishes a possible explanation, for in the human female during pregnancy a new gland develops and matures, viz., that complex structure the placenta, which exerts both a stimulating and inhibiting influence on the other ductless glands. It is thus conceivable that as a result of this struggle affecting chiefly the thyroid, ovaries, adrenals, and pituitary glands, a degree of functional exhaustion may supervene, persisting for months or years, or even permanently. Further, the study of the ductless glands may yet furnish the key to the correct treatment of that great group of sufferers, "the neurasthenics."

The question of fat production is closely related to that of the endocrine glands, for most of these young women with scanty and irregular menstruation, suggesting "ovarian inadequacy," in whom there is under-development of the uterus and ovaries, give evidence in varying degree of what may be termed degenerate-adiposo genitalis. This condition is held to be due to diminished function of the posterior lobe of the pituitary gland after adolescence. Where marked atrophic changes exist in the genital organs treatment will not bring about miraculous results, but there are all degrees between marked atrophy and more or less normal development where treatment is beneficial.

Obesity developing subsequent to pregnancy may be associated with absent, or diminished, fertility, and it is well known that animals "putting on flesh" lose their value for stud purposes.

Thus a foundation is being gradually laid for the correct understanding of many important problems hitherto enveloped in mystery which present themselves for solution during pregnancy, or develop as a result of pregnancy. Fat production occurs, moreover, after the removal of the ovaries, or, again, after

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Such is the story of the "case" on which the whole theory and description of superinvolution has been

based. Authors have copied one from another, and the descriptions have been translated into foreign tongues. Yet the case is undoubtedly one of general tuberculosis associated with atrophic changes in the uterus and appendages. And, moreover, tuberculosis may produce more destructive changes in the uterus and appendages than any other infective agent.

"Superinvolution of the uterus is quite conceivable. It may be a premature senescence, but that is not what its describers mean by superinvolution! I think it best to be silent on a subject in which nothing is ascertained." These sage remarks will be found in the "Clinical Lectures on the Diseases of Women," by Matthews Duncan, p. 19. Simpson states that he had seen "a very considerable number of cases of this morbid state, but I have rarely had opportunities of examining into its nature on the dead subject."

To the increased involution of the uterus during lactation the term "lactation atrophy" has been applied, and this result is thought to be due to the influence of the mammary gland secretion. The mammary gland is believed, under the influence of suckling, to produce a hormone which stimulates the uterus to contract (a fact emphasized by ancient writers), and antagonizes the effect of the corpus luteum. Excessive action associated with amenorrhea results in uterine atrophy and inhibition of the function of the ovaries.

If the uterine atrophy be not well marked, suitable treatment by ovarian and corpus luteum extracts, thyroid, iron, and arsenic, will restore function. In the presence of marked atrophic changes the prognosis is not so good. This superinvolution or lactation atrophy is in all probability due to a disturbance in the endocrine cycle, for treatment by organotherapy aided by the older remedies produces much better results. It must, therefore, be distinguished from results pro-

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duced by infection, whether tuberculous or other, which belong to a different category, and for which other methods of treatment are required.

There is yet another cause, viz., premature senescence, where the uterus has become atrophied many years before the time for physiological atrophy after the menopause. Examples of this condition are in all probability due to premature disturbance in the endocrine cycle, and if seen some time after the menstrual cessation when atrophic changes have occurred in the upper part of the vagina, as well as in the uterus, the prognosis as regards restoration of the menstrual function is not good. Whereas if treated in the beginning by organotherapy it may yet be possible to restore the normal functions.

Closely related to this question of premature uterine atrophy are those examples of uterine atrophy and menstrual cessation which occur from time to time after the operation of curetting, especially when undertaken for the cure of sterility in those women whose menstruation is "scanty." For it is assumed that the endometrium stimulates the ovary, and the ovary the endometrium, and that the curettage done "not wisely, but too well," has eliminated the endometrial stimulus, and if, in addition, there be deficient assistance from the hypophysis, especially the posterior lobe, permanent menstrual cessation may ensue, followed by permanent sterility.

In the presence of obvious derangements of the internal secretory glands, e.g., goitre or acromegaly, sterility is frequent. But there may be derangement where the menstrual functions are not affected, and yet sterility results from the absence of the normal correlation which seems to be essential before the individual may be described as sexually normal.

Further research will doubtless point the way towards improved methods of treatment, but even now

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A word remains to be said regarding the influence of marriage. Reference has already been made to the changes which may occur in the menses after marriage and their dependence on disturbance in the endocrine But there are also important nutritional evele. changes to be observed. The general health improves, the figure develops, and the uterus struggling with spasmodic pain and profusely shedding tears of blood in its sexual agony obtains relief. The dysmonorrhoa ceases, and the monthly loss of blood assumes normal proportion. Spermatic fluid is something more than a fertilizing agent; in all probability a certain amount is absorbed, and doubtless aids in producing a more evenly balanced interaction between the endocrine glands. For some individuals it supplies the missing link in the chain without which it is liable to snap in sundry places. If this were always so, marriage would be the best of all therapeutic agents, but, alas! the opposite conditions not infrequently are produced, and all this without detectable pathology. But this may be due to defective mating, for instances are not uncommon where a second marriage has produced a restoration in health. It is, however, a subject surrounded with difficulty and veiled in mystery, tho solution of which will, no doubt, be forthcoming in the future.

Improvement in the general health of the woman is not infrequently seen when preventive measures against the occurrence of pregnancy are discontinued; this, too, favours the view that the spermatic fluid has some other function not yet fully understood.

Reference.

¹ McCann: "Ovarian Prognancy in an Ovarian Cyst." Proc. Roy. Soc. Med., 1913, vi, Obstet. Section, p. 229.

The Eye as an Index of Age.

BY ERNEST OLARKE, M.D., F.R.C.S.

Consulting Surgeon, Central London Ophthalmic Hospital; Consulting Ophthalmic Surgeon, Miller Hospital, etc.

HE act of accommodation or focusing for near objects is performed by the ciliary muscle, which when it contracts causes the lens to become thicker in the antero-posterior diameter, and it is unnecessary here to refer to the various theories which are supposed to explain the method by which this takes place.

At birth, and for a short time afterwards, the crystalline lens is practically a small bag of semi-fluid jelly, but as age advances a hardening process or sclerosis goes on in the lens, as in all the other tissues of the body, and consequently its elasticity becomes less and less. It necessarily follows that with the diminution of elasticity of the lens, the act of accommodation becomes much more difficult, and a time is reached about the age of forty-five in the normal individual (presbyopic period) when the accommodation near point, which originally may have been as near as 5 cm. from the eye, has so far receded that reading fine print is difficult, and aid has to be rendered with suitable glasses.

Now this accommodation near point varies with the individual and in the individual. It is hardly necessary to emphasize the fact that in estimating the accommodation near point all errors of refraction must be properly corrected and the correction worn when making the examination.

A myope, if he is not wearing his correction, if the myopia be -3 or more, will apparently never reach

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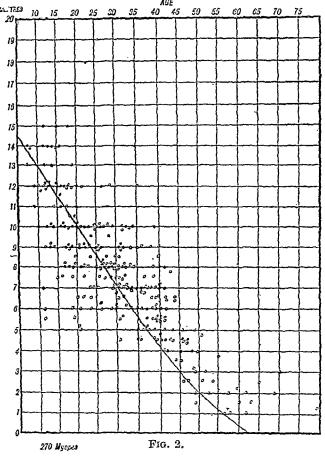
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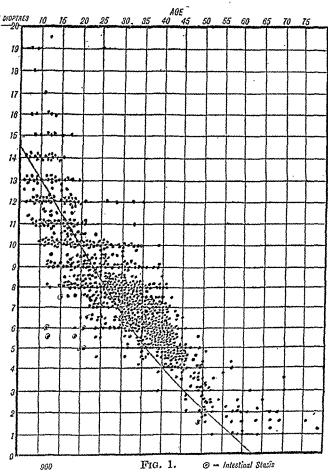
modation power of patients, and have made many tables, comprising about 10,000 records. The accompanying tables are the most recent, and only just finished, and are a very good sample of the others.

Fig. 1 refers to all the cases; Fig. 2 to myopes only.



Care was taken to exclude all cases where disease was present in the eyes, and where vision was worse than 6/9, and all had binocular vision. Everyone under the age of forty-five was examined under a cycloplegic, and thus the error made by Donders was avoided. He included many cases of latent hyperopia, so that age

the presbyopic period, which seems indefinitely postponed, whereas a hyperope has to use up some of his accommodation power in correcting his defect, and if he is not wearing his correction may apparently reach the presbyopic point even at the age of twenty-five.



It is very important to explain this to patients, especially to ladies who look upon glasses for near work as a sign of old age, and postpone using them, sometimes many years, and thus do infinite harm to their whole nervous system.

For many years I have been recording the accom-

THE EYE AS INDEX OF AGE

Two very manifest signs that often accompany this condition are premature grey hair and arcus senilis of the cornea. It should be noted that muscular weakness is not a necessary sign of premature senility; in fact, it is very rarely present.

Myopes, especially those who have not had their error corrected, are known to have a much smaller and probably weaker ciliary muscle than normal, but except in general debility after illness, etc., the loss of accommodation power is not due to loss of power of the ciliary muscle, but to loss of elasticity of the lens, and I show by table, Fig. 2, consisting only of myopes, that the picture is exactly the same as in Fig. 1.

Now we come to the interesting question, what is the common cause of this premature senility? Why is a man or woman really older than the years they have lived? There has been a definite loss of nervous energy above and beyond the normal loss in the ordinary wear and tear of life.

I have not the least doubt that one of the causes of this loss is eye-strain. I have never yet seen a patient with premature grey hair that had not a marked error of refraction that had not been corrected, and the error has generally been very small. Eye-strain means an unnecessary leakage of nervous energy, acting during all the waking hours, lowering the resisting power of the whole body, and allowing the next common cause, viz., toxemia, to have full play. The standing army which has been ready to oppose its chief enemy has been weakened by a continual guerilla warfare. Of all the toxemias, alimentary toxemia takes first place, and while the teeth play a very prominent part, intestinal toxemia, the result of intestinal stasis, is by far the commonest cause. chronic rather than an acute cause, whereas dentaltrouble is generally sub-acute or acute.

Intestinal stasis invariably leads to general

for age after twenty-five he makes the mean accommodation power lower than mine; in fact, his mean line becomes my minimum line, above the age of thirty.

In the diagrams the vertical lines represent the age in years, and the horizontal the accommodation power in dioptres. As age progresses it is noticed that the accommodation power decreases, and there is a definite grouping about a diagonal. The diagonal marked in the diagram is Donders' mean line. Now, although there is a definite grouping, still we notice a very marked difference between individuals of the same age as regards their accommodation power.

The question may be asked whether these wide differences are opposed to Donders' statement that "at a given time of life the range of accommodation is an almost law-determined quantity." The answer is supplied by Donders himself, who says that the unfavourable exceptions are connected with definite defects, and vice versa.

Now, what is the definite defect of an otherwise normal individual of forty, who, instead of having 6D accommodation power, which is the average, has only 2.5? Obviously the answer is: Premature old age! This is exactly what one finds clinically. It is common knowledge that the average man of fifty looks fifty, acts as if fifty, and is fifty; but many aged fifty look sixty-five, and to all intents and purposes are sixty-five, while others look only thirty-eight or forty, and act and live as if only that age.

Premature senility, which is thus marked in the lens, is due to increased sclerosis of the lens, and shows itself of course in other structures of the body which also suffer from this increased sclerosis, notably the arteries, (hence the saying that "a man is as old as his arteries,") but we have no such delicate index in any part of the body as the loss of accommodation power gives us.

of resisting power to any disease, proneness to catch any infection, and inability to fight and win; it means, in a large number of cases, high blood-pressure. High blood-pressure as a rule is the result of the toxic condition of the blood, and the hardening of the arteries and arterioles, and is nature's effort to keep distal parts properly supplied with blood; hence any attempt to lower the blood-pressure directly, as by bleeding, is only indicated as a purely temporary measure when the blood-pressure is very high, or just before some operation where excessive bleeding might be very serious, as in an operation on the eye. Except in these circumstances bleeding may be attended by disastrous results. We must not forget that high blood-pressure, although a symptom, may be a very dangerous symptom, and may cause hemorrhage into the retina with possible blindness, or into the brain with possible death; therefore we want to lower it as soon as possible if it is unduly high, and we can only do this by getting rid of the cause, viz., the toxin, and preventing its reformation.

To sum up, then, the premature ageing of a patient indicated by the lowered power of accommodation may be the first and even the only sign that something is wrong, and thus becomes a most valuable guide and priceless danger signal, because the patient, thus warned, can be thoroughly overhauled by a physician and conditions found which may be put right if thus discovered in time.

toxemia. I have no doubt toxemia is the commonest cause of premature senility, and is the cause of thousands of unnecessary premature deaths.

Look at two cases in Fig. 1, with only 5D of accommodation power at the age of twenty, when the average is 10D, and the best recorded case was 12D; both these patients were suffering from habitual constipation.

One must not forget that sorrow, anxiety, and worry, etc., are constant and well-known causes of premature ageing, but this effect is probably aided by the foregoing mentioned causes.

When a patient presents himself to me I guess his age, and when I find he is much older than he appears I invariably find his accommodation power is above the average, and on questioning him I also invariably find he has paid particular attention to the bowels. The man to be suspicious of is the one who brags he never takes an aperient or oil.

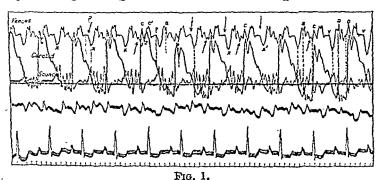
If this ageing process has not gone too far we can by treatment "stay the hand of time."

A man of fifty whose accommodation power and general appearance and vitality show him to be really sixty-seven or sixty-eight can, by wearing the suitable correction of his ocular defect as bifocal glasses, and by attending to his general health, clearing out his intestines constantly, and having his teeth thoroughly overhauled, thus stay the sclerosing process in the lens, so that ten years later he may be only a year or two older in reality. This, of course, depends on whether the treatment has been taken in time. For instance, I have a record of a patient who at the age of twenty-six had 6D accommodation power. I warned him of his premature senility, and he was so improved that six years later his accommodation power was still 6; he had regained those lost years.

Premature senility very often means a good deal more than loss of accommodation power, it means loss

are given in conjunction with optical pulse curves taken at the same speed of paper and within a few minutes of the former. These permit one to make a close study of the condition examined. All the records were taken from the same case, an interesting and peculiar affection in a man under the care of Dr. Clerc, who has kindly consented to this publication of it.

In this uncommon type of affection, the heart presented signs of dilatation with displacement of the apex downwards, and marked dilatation of the left ventricle had been established by radioscopy. All the usual features of aortic regurgitation were pretty well exhibited with ædema, dyspnæa, etc. A prolonged diastolic bruit of musical quality, bruit de guimbarde, not a soft or mere blowing sound, was distinctly heard by the ear at from six to eighteen inches from the patient's chest, and with no other medium of conduction than the air. With the ear placed on the chest at the apex beat or near it, the first sound could be heard clearly, and in this position it was also well reproduced by the registering tambour. At certain points of the



chest wall the diastolic bruit was well reproduced in the records (Fig. 1), and was shown to run throughout the whole of diastole to the position of a normal first sound. At other points two sounds, systolic and early diastolic,

The Venous Pressure Changes in Aortic Lesions.

By PROFESSOR D. T. BARRY, M.D., F.R.C.S., D.P.H., etc.

Professor of Physiology, University College, Cork, etc.

(From l'Hôpital Lariboisière, Paris, and University College, Cork.)

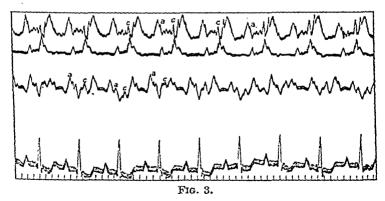
HE optical system of pulse recording possesses certain important advantages over the tambour lever method in giving pictures of greater detail and in revealing pressure changes with more accuracy than this latter, whether it be graphically or photographically employed. The writer has recently taken many pulse records by the former at l'Hôpital Lariboisière, Paris, and finds that the work done there in conjunction with that done elsewhere, demonstrates a distinct superiority of the optical method for clinical work. The apparatus at present available for it is, of course, not easily portable, and must still serve almost exclusively for hospital work. Combined recording with electrocardiogram is more convenient when levers are used photographically for the pulses than when these are optically recorded, because of special appliances necessary for the latter method, with limitations of the field, half shadow on the slit, etc. When, for example, triple records of heart sounds with carotid and venous pulses are desired by this method as well as the electrocardiogram, it means cramping and reduction of the oscillations, necessitating illumination of part of the field for the string, and shading another part for the beams from the mirrors. It is hoped, however, soon to improve the technique so that this can be done conveniently. (See Note at end.) In this article in THE PRACTITIONER some records of the electrocardiogram with simultaneous lever records of venous pulse

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character of the murmur presented to the ear was that of a high initial intensity, fading off to a low, enfeebled type of sound at the end. Later records at other points of the chest wall gave intermediate pictures with the second sound shown merging into the first by a series of small vibrations occupying late diastole. These seem to me to support the explanation given. Auricle sounds may occur to confuse the picture.

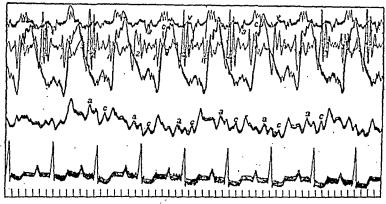
This bruit has been ascribed by Clerc and Surmont (Bull. Soc. Med., 1924) to a partial detachment of one of the sigmoid valves due to syphilis or trauma, the history of the case being in accordance with either of these causes.

The changes in venous pressure accompanying this lesion provide an important study. They are to be determined from observation of the venograms, optical on top and lever record next to electrocardiogram in figures. The optical venogram displays some varieties of form in different records, but a remarkable constancy throughout any one record. To distinguish the a, c, and v waves in these curves it is best to begin with the oscillation which is synchronous with the carotid upstroke (third curve). This upstroke has been touched



with pen and ink in alternate cycles in Figs. 1 and 2, so as to make it clearer. The movement of the beam in

were brought out by the same recorder of low frequency, that is about 30 to 32 (Fig. 2). Records where a first sound was separately and clearly marked, with an early diastolic one, were best obtained to the left of the



F1g. 2.

sternum; those with a pure and prolonged diastolic bruit shown running into the position of a first sound, from the right of the sternum. Variations in the damping and tension of the sound tambour also affected the character of the phonogram. The pitch of the murmur was higher than that of the first sound, but the type of tambour used is not reliable for revealing such differences with accuracy.

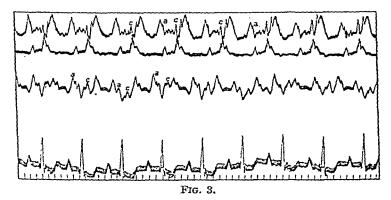
It was, at first sight, somewhat puzzling to account for the occurrence at one time, of a record of one bruit abnormally placed and unduly prolonged, at another, of two normally placed sounds. The explanation as suggested by Clerc's classification of the murmur, bruit piaulant, or puling sound, probably is that the initial part of the bruit only was reproduced in Fig. 2, the remainder being too feeble at the particular site explored to affect the recording system. Seeing the clearness with which a short, sharp second sound was brought out in some of the records I hesitated for a while about accepting this suggestion, although the

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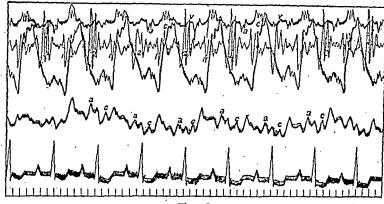


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terminology. That is coming after the v wave, though in some records it seemed possible that v ran into a, the latter being represented by the small spike already referred to. The form of the venous curve in Fig. 3 is different from that in Fig. 1, and the a-c interval is apparently somewhat greater in the former.

The activity of the auricle is also revealed by a few vibrations on the carotid curve preceding the arterial pulse wave, and the first of these undulations, which looks as if it might be occasioned by auricular systole, is about one-tenth second later than the wave in question in the venous pulse. But the interval from it to the carotid stroke is actually less than the P-R interval, and, therefore, it occurs after the beginning of auricular systole. This picture is common in arterial curves. It is about synchronous with the sharp spike on the top of the a wave. The length of the interval from the supposed a wave on the venous record to the carotid stroke, which looks very long, exceeds the P-R interval by very little more than does the a-c interval in the lever record. The fact also that we can determine v as preceding the dip X in a more appropriate position leads to the decision that this wave following the dip X is to be called a, although the early portion of it may represent a passive if rapid rise in auricular pressure.

To ascertain the position of the v wave it is best to begin by taking the dicrotic notch on the arterial curve. This, under the circumstances, is poorly marked, but a distinct shoulder is seen on the downstroke of the carotid pulse. This latter shows a bifid summit, and corresponding with that condition are ejection waves on the venous pulse already referred to, giving rise to a sort of plateau, at the end of which there is a sharp fall in venous pressure. This is interrupted at a point preceding the dicrotic notch, the pressure remaining

producing the line being fast, the line is very thin. The venous wave, which is synchronous with this, is marked c in some of the cycles (Figs. 1 and 3); it is generally preceded by a small oscillation, shown by an upwardly directed arrow in a few cycles, which is nearly one-tenth second to the left of the carotid beat. This small oscillation, which does not appear in the lever record, seems to me for reasons which will appear to be systolic in time; if so, it is to be regarded as presphygmic in origin and to constitute part of the c wave, if not the c wave in itself. There are still some observers who do not admit a pre-sphygmic element in the c wave, but anyone who uses the optical system must realize that there is such a factor. Sometimes it is taken up in the oscillation corresponding to the carotid pulse, giving a single c the beginning of which precedes the carotid beat. Including this wave, the period of ejection is marked by three or four distinct oscillations, best seen in Fig. 2.

The a wave, at first sight, looks well defined, although it is composed of two or more undulations-generally three in the optical, and two in the lever record. In the latter the first undulation is a tall, sharp, pointed wave, the second smaller and flat-topped. In the optical record the first undulation is really double; it presents a small, sharp spike, supervening on a wave The wave in the lever record of slower formation. begins about one-twentieth second after the beginning of the P deflection, and gives an a-c interval between onefifth and one-fourth second, corresponding to P-R interval of about the same length. In the optical record, the corresponding wave begins at the dip of lowest pressure marked x, and, measured from this point, the a-cinterval, that is, from x to the carotid stroke, is always somewhat greater than that of the lever record, which is about equal to the P-R interval. This point X is supposed to correspond with the dip y in Mackenzie's

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which shows that there is nothing like a fractionated systole in the auricle. Therefore the accessory auricular wave in the venous pulse is a passive one, and due to an overfilled ventricle, affecting right and left auricles alike. There may be actual regurgitation, passive, through an open mitral or tricuspid valve, which would affect the relaxing wall of the auricle and give rise to a secondary wave. In whatever way effected it is a sign of disablement, and calls for careful watching.

The break in the declining phase of the venous plateau is a stasis effect, the onward flow being checked in late systole, and before the a-v valves open in diastole. The apex of a well-formed v wave should, I think, precede slightly the point of opening of the a-v valves; it is formed by some agency other than the passive change from a static rise of pressure when the a-v valves open. This agency forms the subject of an article by the present writer in the "Journal of Physiology," lix, 4 and 5, 293-1924, and of a communication in the "Proceedings of the Physiological Society," xxxviii, Oct. 18, 1924. It is sufficient here to state that the defective semilunar valves may be unfavourable to the proper formation of v.

Note.

Recording of the electrocardiogram simultaneously with optical records of pulses by half shadow for the latter on the photographic slit provides a method for the investigation of cardiac functional activity which is very satisfactory. Instant comparison of different events in the cardiac cycle, of corresponding points in venous and arterial curves, with reproduction of the finer oscillations in these, and very little correction for latent period of the optical system, make the method a most desirable one. Anyone possessing a suitable electrocardiograph with a set of optical tambours, such as those made for the writer by Messrs. Boulitte, Rue

level to beyond this notch, and then falling somewhat abruptly to the dip X. The beginning of this drop, a rounded shoulder marked with an inverted arrow, is taken as the summit of the v wave, namely, the point at which the auriculo-ventricular valves are fully opened. The corresponding point to this in the lever record succeeds the T wave in the electrocardiogram by more than a tenth of a second.

The interpretation of systemic venous pressure changes is a matter of some difficulty in relation to events taking place on the left side of the heart. The writer is at present engaged in experimental work on the dog's heart with a view to determining how far the effects of back flow into the left auricle through a leak in the mitral valve, set up by tube and plunger, may be revealed by a manometer in the right auricle. That they are so revealed in certain conditions is already apparent, but to what extent is not yet quite clear. The question is distinct from that of secondary changes, such as tricuspid regurgitation resulting from left-sided obstruction. In the present case the venous system as a whole is choked, as shown by the form of the venous curve, and the accessory undulations on the a wave, etc., with a long a-c interval, indicate laboured contraction in both auricles. The left auricle meets with considerable resistance from the overfilled ventricle, in which, possibly, the mitral cusps have been floated up into a position of closure at the moment of auricular systole. On the right side the ventricle is also probably well filled at the moment of auricular systole, because of left-sided obstruction. Regurgitation from the aorta is most pronounced at the beginning of diastole, when the greatest pressure difference exists between aorta and ventricle, but the accumulating blood is most likely to affect auricular pressure in late diastole.

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Bobillot, Paris, can, with a fair amount of patience and practice, acquire the necessary skill and proficiency for good results. The accompanying illustration (Fig. 4)



Fig. 4.

is from an apparently normal young man. His venous pulse differs in certain features from other types, particularly so in the relation of the sharp oscillation on the v wave (described by me in the "Proceedings of the Physiological Society," Oct. 18, 1924) to the static rise of pressure. The different types of venous pulse met with normally are at present being investigated by the method referred to and an attempt being made to correlate characteristics with functional capacity.

On the Relative Value of Symptoms and Physical Signs in the Early Diagnosis of Pulmonary Tuberculosis.

By D. G. MACLEOD MUNRO, M.D., M.R.C.P.,

Deputy Commissioner of Medical Services for Tuberculosis to the

Ministry of Pensions.

UCCESS in our battle with pulmonary tuberculosis rests ultimately with the general practitioner, and its early recognition is the first step in this direction. The following remarks, therefore, are addressed primarily to him, for upon his failure to diagnose pulmonary tuberculosis in its early stage some quite unjustifiable aspersions have been made from time to time.

Unsatisfactory and inadequate though the teaching of this important subject has been in the ordinary medical curriculum up to recent years—a subject, which is vitally interwoven with the sociological and economic side of daily life—it is encouraging to note how keenly the general practitioner has recently taken up this question of early diagnosis in pulmonary tuberculosis, and with what comparative success, especially on the lines of more recent views on physical diagnosis. It is no part of my intention to discuss this question from any original or novel standpoint, but rather because I am inclined to think that we should seriously consider whether the pendulum has not swung rather too far in the direction

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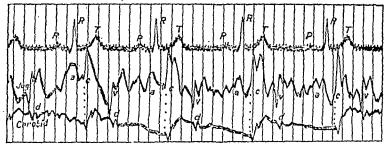


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found in the sputum. But, alas! even this test is not absolutely infallible, for we come across—rarely, no doubt-carriers of the tubercle bacillus who may not themselves be suffering from the disease. And it is not so many years ago that in civil practice the earliest recognition of the disease was based upon data which at the present time are considered to be the sign manual of a comparatively advanced stage. The recognition of an alteration in the respiratory murmur, for example, as shown by prolongation of the expiratory phase or even by the presence of tubular or bronchial breathing was regarded as quite a feat in physical diagnosis. Indeed, it may not be yet generally appreciated that what is to be looked for is a change in the breath sounds of the inspiratory phase, which may be noted at a much earlier stage of the disease, and, further, that the alteration in the expiratory phase already referred to may be present in many quite healthy chests.

The change of method in the elucidation of physical signs during the past few years has been, indeed, quite revolutionary in character, and thanks to Rivière and others, certain refinements in physical examination have materially assisted in the earlier recognition of the disease. The utility of inspection and palpation has been especially developed by the American school and the value of these methods of physical diagnosis greatly enhanced. Hitherto, inspection of the chest has been. from the point of view of the general practitioner, rather a perfunctory affair and the virtues of palpation limited to vocal fremitus—now regarded as a diagnostic asset, in such cases, of minimal value. Now that special attention is being paid to the muscle reflex, which results in what is known as "lagging," the presence of which especially at an apex strongly suggests active mischief, although percussion and auscultation may give no indication of this, inspection and palpation assume a more important role. The proper appreciation of this

of diagnosis from purely physical signs. It is a remarkable—if unfortunate—fact that in this disease, so especially, fashions and fads whether in diagnosis or treatment take possession of the medical mind.

Many will have heard of the "milk cure," the "grape cure," the anti-phymose remedy of Mathieu—the latter being simply a sterile saline solution, but which had a great vogue in its day. These and many other vaunted "cures" have basked in the sun of popular favour for a brief day. But whereas it may be fairly said that fashions in treatment at their worst generally do no damage, and indeed in this disease in certain circumstances may have their uses—it is quite otherwise in diagnosis where an ill-balanced judgment may have serious consequences for the patient, not to speak of the doctor's reputation.

The time, I think, is ripe to seek an adjustment of values between the two chief factors in the early diagnosis of pulmonary tuberculosis—namely, the symptomatology and physical signs of the disease at this stage. A correct decision at an early stage may have weighty consequences for the patient, not only from the point of view of successful treatment, but also on the whole economic outlook of his life.

In a disease in which so many clinical and anatomical phenomena have to be correlated and in which the same individual may present a new symptom complex every few weeks the position of the diagnostician is not always a happy one. It is only by painstaking adjustment of all the contributory elements in such cases and in the use of skilled judgment in interpreting the clinical picture thus presented that success will attend our efforts in seeking to make a diagnosis in these difficult cases.

I am not aware whether it is still the rule, but until very recently I understand that the diagnosis of pulmonary tuberculosis in the Army was not regarded as established unless the tubercle bacillus had been the early cases of pulmonary tuberculosis now under discussion any appreciable change can be found to have occurred in Krönig's area of so-called apical resonance. In rather a different category are the bands of impairment in the percussion note first described by Abrams. These bands of impaired resonance are said to be purely reflex in origin, and to be one of the earliest indications of active pulmonary tuberculosis. My own experience of this diagnostic sign is not extensive, and probably on this account not of much value, but I confess that in a number of cases in which I have utilized this method of physical diagnosis I have never been able to satisfy myself as to the reliability of the results. In this brief reference to percussion I would remind you that alteration in the percussion note is more significant if found at the left apex, and, further, that it is often useful to percuss from below upwards. The value of "respiratory" percussion also must not be overlooked in doubtful cases.

But if we may gratefully acknowledge that a great deal of useful work has been done by what I may perhaps refer to without offence as the "physical force" school, we must admit, I think, that on the question of the early diagnosis of pulmonary tuberculosis they have of late held the field too exclusively with results sometimes unfortunate for the patient and sometimes also to the doctor's reputation from two points of view:—

- 1. In the diagnosis of pulmonary tuberculosis from limited physical signs when the disease was not in fact present.
- 2. In the subordination and in some cases the exclusion of symptomatology as an aid to diagnosis.

These two factors are really interdependent in many ways, although they may operate to the disadvantage of the patient in different directions. With regard to

sign requires practice, but this is soon acquired. It must be remarked here that apparent equality of chest expansion does not necessarily negative pulmonary tuberculosis.

The information conveyed by inspection in these cases may be greatly reinforced by light finger-tip palpation, by means of which evidence of localized reflex muscle spasm especially as affecting the sternomastoid, the scaleni, and the upper pectorals may be detected. The trained finger appreciates in such cases a sense of muscle resistance in contradistinction to the smooth and more elastic sensation of normal muscle tension. Then, too, trophic changes in the muscles of the shoulder girdle and the state of the subcutaneous tissues may be similarly recognized. In the opinion of some experts, indeed, light touch palpation has very largely replaced percussion as an aid to diagnosis. In this connection it must be noted that one may find dystrophy of the shoulder girdle muscles on one sidethat on which the disease has been of some standingand reflex muscle spasm on the opposite side, where the disease is active and more recent.

The technique of percussion has been much improved, and it is now generally recognized that to be of any real value, apart from other points of detail, percussion must be very light. But this method of physical diagnosis still presents many pitfalls, and apart altogether from the question of accuracy, it cannot be too strongly affirmed that local changes in the percussion note, especially at the apex of a lung—even if the existence of such cannot be doubted, convey nothing as to the presence of an active tuberculous lesion, or, indeed, that the lesion, if such exists, is tubercular at all.

In my opinion too much attention in the matter of percussion has been focussed upon the definition of certain areas of the chest-wall called after some eminent authorities. It is questionable, for example, whether in

the early cases of pulmonary tuberculosis now under discussion any appreciable change can be found to have occurred in Krönig's area of so-called apical resonance. In rather a different category are the bands of impairment in the percussion note first described by These bands of impaired resonance are said to be purely reflex in origin, and to be one of the earliest indications of active pulmonary tuberculosis. My own experience of this diagnostic sign is not extensive, and probably on this account not of much value, but I confess that in a number of cases in which I have utilized this method of physical diagnosis I have never been able to satisfy myself as to the reliability of the results. In this brief reference to percussion I would remind you that alteration in the percussion note is more significant if found at the left apex, and, further, that it is often useful to percuss from below upwards. The value of "respiratory" percussion also must not be overlooked in doubtful cases.

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the former the social and economic factors are largely concerned. How often has it not been the case in the course of our campaign against the disease-and here specialists have been sometimes no less at fault than general practitioners—that on finding limited and apparently abnormal signs at an apex or elsewhere, signs indicating some aberration from the so-called normal, we have promptly banished the unfortunate victim to a sanatorium, after which, despite the fact that he may have been non-tuberculous, he is inevitably branded with the stigma of tuberculosis with consequent loss of economic value, not to speak of the serious family disruption occasioned by his course of treatment. As a result of this too pedantic regard for physical signs I have no hesitation in saying that a by no means insignificant proportion of persons undergoing sanatorium treatment may be found not to be suffering from pulmonary tuberculosis at all. No doubt the not unnatural desire of the specialist or tuberculosis officer not to be "caught napping"-if I may so put it-by so capricious a disease is responsible at times for the exaggerated importance attached to suggestive local physical signs. By way of analogy the position is much as if, meeting a man in the street who to all appearances looked like a thief, we had him arrested and imprisoned with the encouraging observation that if he was not a thief he certainly should be, and must take the consequences! But, on the other hand, I have known of cases which point the moral of these re-In this type of case no physical signs whatever suggestive of pulmonary tuberculosis may have been found after the most careful examination, and yet the disease has declared itself by a sharp hæmoptysis. may quite well have been that in some of these cases the history and symptomatic evidence had not been given their due importance.

Assuming that the majority of the civilized com-

munity have been infected by tubercle at one period or another of early life, and that there may be some localized evidence of this, although some authorities, such as Pottenger, refer to this primary focus of infection as the real "incipient" tuberculosis, it is nevertheless true. I think, that such local evidence of tuberculous infection is not in itself sufficient to label an individual as suffering from pulmonary tuberculosis, for while there is much to be said for the maxim that there is no smoke without fire, it must not be forgotten that in such cases we may be raking only the dead embers! Further, it must again be emphasized that the physical signs referred to may, in fact, be nontuberculous from the commencement. In this connection I need only mention the localized areas of collapse following a broncho-pneumonia or the apical collapse consequent upon chronic nasal obstruction from whatever cause, or whooping cough.

The second of the two factors referred to earlier in these remarks, that is, the undue subordination of symptomatology in arriving at a diagnosis may be of vital importance to the patient. I think it was Osler who remarked that it was better to diagnose the presence of active tuberculosis from symptoms, and in the absence of physical signs, than the reverse. But what do we know of the earliest symptoms of the disease? When are their faint beginnings, and when do they first declare themselves? We do not know, and often the patient cannot help us. We do know, however, that a toxemic state shown in one form or another and in greatly varying degree is a manifestation of active tuberculosis, and we can affirm that pulmonary tuberculosis cannot be said to be present in an active form without some of the symptoms of toxemia. It must be noted. however, as will be shown later, that tuberculosis cannot be held responsible for every unexplained toxemia.

The symptoms present may not, in a given case,

have been sufficiently obvious to call the patient's attention to the matter at all, and it is just in such cases that the closest scrutiny of the history of the case may furnish just that sufficiency of evidence to turn suspicion into something more tangible. The information given by the patient, which may turn the scale, is often quite accidental. His appetite may have become capricious, or he may have suffered a good deal from flatulence, for which he is unable to account. He may have been having an unaccustomed sense of "tiredness" in the morning, or there may have been recurring headaches, possibly some backache, but not sufficient to indicate to him that he has been febrile.

The symptom-complex of toxemia is much the same from whatever source of infection it may be derived, and operates mainly through the sympathetic system with disturbances of function of all the organs supplied by that system; the result is shown by such symptoms as malaise and lassitude, nervous instability, tachycardia, fever, and night sweats. This group of symptoms, important though these are, cannot in themselves be regarded as pathognomonic of pulmonary tuberculosis, and to give them due weight in this connection other probable causes of infection must be eliminated. It is necessary to analyse in some detail what has been called the syndrome of toxemia and to suggest where this is possible in what specific way individual symptoms may be regarded as evidence of tuberculous infection.

MALAISE.

The patient may have nothing very tangible to complain of except that he feels more easily tired than usual. He may find his ordinary duties, and even his pleasures, are carried through with more effort than formerly. There is, indeed, a strange disinclination for exertion of any kind, and this form of languor is

characteristically present in the morning, passing off as the day proceeds, but returning later.

FEVER.

The presence of fever as an indication of tuberculous toxemia has been accepted as one of the basic elements in the diagnosis, and in this connection is of the greatest value. But while the importance of this symptom is not to be underestimated, certain qualifications are necessary if we are to arrive at trustworthy conclusions. In discussing the question of fever in pulmonary tuberculosis, it is essential that we should have as clear an understanding as is possible as to what constitutes a normal temperature. Many careful investigations have been carried out on this question, and speaking generally, it has been found that in the majority of healthy persons the average early morning temperature is approximately 97.2 deg. to 97.4 deg. F., rising to a maximum of 98.6 deg. F. in the early afternoon. This normal average is maintained by an equilibrium between the forces governing heat production and heat dissipation, and the entry of toxins into the blood stream, from whatever source, disturbs this balance. Some variation beyond these strict limits are met with of course in individual cases, and are often dependent upon certain extraneous factors.

It is unfortunately the case that temperature records are often taken in so casual a manner as to be practically valueless. While rectal temperature records are generally the more rapid and reliable—it is not necessary to assume that oral temperatures are not sufficiently so for general practice. If certain simple precautions are taken, oral temperature records are quite trustworthy except in the case of mouth-breathers. The thermometer should be retained in the mouth for at least seven minutes. Temperatures should not be taken immediately after the patient returns indoors after

exposure to cold wind nor after partaking of a hot meal. Then, too, it is not sufficiently recognized that the maximum temperature period shows great variability in different persons. To ascertain this maximum period with any accuracy in a given case it is necessary to take the temperature every two hours. The first recorded temperature for the day ought not to be, as is often the case, after the patient has got up and dressed, but as early as possible in the morning before rising. Further, it must be remembered that there is a normal diurnal variation in temperature of about 1.5° F. as a result of the natural ebb and flow of the body heat.

While it is not usual to find much temperature elevation in early pulmonary tuberculosis it may be found that the early morning temperature is 98° F. and the maximum record for the day 99·2° F. or 99·4° F. The necessity for a continuous temperature record extending over three or four weeks in any case of suspected early tuberculosis will become apparent when it is pointed out that the toxemic state is by no means a constant one—in other words that it ebbs and flows. The continuous temperature record therefore gives a fair representation of the degree of toxemia present.

The early morning temperature may also, in many of these cases, be abnormally low, e.g., 96.8° F., and in such cases a rise from this point to 98.8° F. in the early afternoon must be regarded with suspicion, if occurring regularly and from no known cause.

But assuming that it has been found that the temperature shows evidence of toxemia after the precautions referred to have been carried out and there are no other definite signs or symptoms to support a diagnosis of pulmonary tuberculosis a further analysis will have to be made to exclude other possible causes. Among these must be mentioned sinusitis, appendicular trouble, tonsillar infections, septic teeth, bronchiectasis and similar localized infections. In chlorosis also there is

sometimes a slight average increase of temperature while the pre-menstrual rise must not be overlooked. In persons of highly strung nervous temperament, there are sometimes quite noticeable variations in the temperature curve. So that it will be seen that the process of elimination may have to be thoroughly invoked to clear the ground.

Are there then any very clear indications to go upon when all this has been done, which may point the way to a tuberculous toxæmia as the responsible source of the fever? I think there are. My own experience has led me to attach much importance to an early morning temperature-taken before rising-which is consistently a little above the average mean. Of additional assistance to diagnosis is what is known as "provoked fever"-that is the increase of temperature caused by a definite amount of exercise, with a control. While in a healthy person there is always a temporary rise in temperature—sometimes a considerable one—after exercise, this is usually quite evanescent and within halfan-hour or so the temperature returns to normal. This is not so in the case of a tuberculous person. The decline of the temperature to normal limits is delayed and it may remain elevated for two or three hours. Hence the value of post-exercise temperature records in suspicious cases. Then too extraneous conditions resulting in emotional disturbance, worry and anxiety, which in a healthy person have no appreciable effect on temperature may cause considerable disturbance in a tuberculous person. These features may be said to be characteristic of the tuberculous person. It will be seen that fever, though still to be regarded as one of the cardinal points of the toxemia of tuberculosis, cannot be accepted without due consideration of the qualifications outlined above, especially if there is no supporting evidence in other directions. In this connection it must be noted that the absence of fever does not necessarily

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in which there has been a persistent tachycardia not referable to any cardiac abnormality, or byperthyroidism—a condition which is always to be borne in mind in the differential diagnosis—and in which the true diagnosis was only revealed by a sharp hæmoptysis. The physical signs in the chest in such cases may for a long time show no evidence of anything abnormal.

Hypotension.—This condition does not strictly fall under the symptomatic evidence of early pulmonary tuberculosis, but it is convenient to refer to it in this place. It will be found to be present in a good many of these cases, and I do not know that this fact has been generally appreciated.

GASTRO-INTESTINAL SYMPTOMS.

These are not constant in character, although present in one form or another in a large number of cases of early tuberculosis-they may, indeed, in some instances, dominate the clinical picture. There is seldom complete anorexia at this stage, capriciousness of appetite is more common, and it is characteristic too of the disease that with a temperature of considerable altitude there is often no loss of appetite, such as is to be noted in more febrile states. The development and persistence of gastritis of varying severity in a young person, without known cause, especially if there be any additional evidence of systemic disturbances, is to be regarded with suspicion. Diarrhœa is not often met with in early tuberculosis unless in the case of young children. While progressive loss of weight has considerable significance, it must not be forgotten that there may be quite noticeable fluctuations in weight up to the age of twenty-five or more.

NERVOUS SYSTEM.

The group of symptoms covered by the terms 295

rule out the possibility of the existence of pulmonary tuberculosis.

CIRCULATORY DISTURBANCES: PALPITATION, TACHYCARDIA.

From time to time I have seen patients found to be suffering from early pulmonary tuberculosis who have referred to an irregular and rapid action of the heart coming on without any apparent reason, but on the whole it has not been my experience that the cardiac disturbances caused by tuberculous toxemia are noticed subjectively by the patient.

Tachycardia, which is of frequent occurrence in early tuberculosis-Fishberg puts it at 90 per cent. of incipient cases—is hardly ever a subjective symptom. Like fever, it is of toxic origin, and appears to be the result of excessive stimulation of the sympathetic nervous system. The peculiar instability of the pulse in pulmonary tuberculosis would appear to result from a combination of vagus and sympathetic stimulation. Pottenger, who supports this view, considers that tachycardia as such is not a particular characteristic of active tuberculosis. In his opinion it is not regularly present unless the patient is in a depressed state, or has been over-exerting himself. This I am inclined to think does not fully represent the case. It is a matter of general acceptance now, I believe, that a pulse rate out of all proportion to any febrile condition present is a very common and reliable symptom of early tuberculosis in an active state, and further, that the pulse rate may be notably increased on the slightest excitement or even after a fit of coughing. Another well marked characteristic is that just as in the case of fever due to tuberculous toxemia the fall of temperature is considerably delayed after exercise, so it is found that the increased pulse rate after exercise falls much more slowly than in health. I have repeatedly seen cases

in which there has been a persistent tachycardia not referable to any cardiac abnormality, or hyperthyroidism—a condition which is always to be borne in mind in the differential diagnosis—and in which the true diagnosis was only revealed by a sharp hæmoptysis. The physical signs in the chest in such cases may for a long time show no evidence of anything abnormal.

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NERVOUS SYSTEM.

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neurasthenia and psychasthenia may be the only evidences of an early pulmonary tuberculosis. These may continue for a number of years, sometimes without any overt signs of pulmonary trouble. Perhaps the most characteristic is the languor already referred to, and the persistent sense of tiredness, the disinclination to take up any task, and the inability to concentrate on any work undertaken. Sometimes, too, there is marked mental irritability and changefulness of mood. In addition, we may often note headache, fleeting spinal pains, and giddiness. These, in my experience, have been the most constant indications of tuberculous toxemia in its effect upon the nervous system. addition, certain localized nervous reflex effects have to be noted. Pain under one or other clavicle is not infrequently complained of, and may be elicited on deep pressure. Shoulder pains often radiating down the arm and frequently referred to as rheumatic are more common in cases of longer standing.

Hoarseness or huskiness of voice may be the first intimation of the existence of pulmonary tuberculosis, and may appear without known cause. This is usually transient and recurrent, and may be so slight that the patient attaches no importance to it.

CONCLUSIONS.

These symptoms taken together practically embrace what may be called the toxemic syndrome of early pulmonary tuberculosis, and the value of the group as an aid to early diagnosis is incontestable, especially in doubtful cases that on examination yield no definite physical signs. It will be noted then that pulmonary tuberculosis may masquerade as an affection of each of the great systems of the body with no signs or symptoms in any way referable to the lungs. There is no other disease which, very often under the outward guise of ordinary health, can present so protean an array of

symptoms often apparently trivial in themselves. Of the several symptoms discussed one only may be present in a given case, or the patient may present the most disconcerting variety of symptoms, each of which has to be tracked to its lair, so to speak. In none of these cases it is assumed can any assistance be rendered by the presence of cough, hæmoptysis, or pleurisy, nor does X-ray examination at this stage yield any useful information. The complement fixation test may or may not be of some assistance.

It is often a difficult but fascinating problem, and nothing but the most careful sifting of all the evidence is likely to lead us out of the maze. Family history cannot be altogether ignored, but the personal history is more important and should include full details of previous illnesses from childhood onwards. The key to the diagnosis, however, is to be found most commonly in the history of the present illness, and the inquiry should include a complete survey of the great systems of the body. Individual symptoms may not in themselves seem any more important than do the individual atoms of a beautiful piece of mosaic, and it is only when these have been duly analysed, collected, and placed in correlation to one another that their importance in the completion of the picture can be realized. In this way a diagnosis can sometimes be arrived at long before ordinary physical examination of the chest, and the confirmatory evidence of sputum and X-ray findings make the diagnosis evident to the most casual observer.

Chronic Nasal Sinus Inflammation.

By W. J. HARRISON, M.B., M.R.C.S.

Hon. Surgeon Throat and Ear Hospital, and Surgeon-in-Charge Throat and Ear Department, Children's Hospital, Newcastle-on-Tyne.

CCORDING to statistics, 2 per cent. of the population suffer from inflammation of the accessory sinuses of the nose. When the ventilation and drainage of the sinuses are considered, one rather wonders that there are not more cases.

The frontal sinus drains into the nose through an aperture in the floor, and so has the best drainage of all sinuses, but during the night a large quantity of fluid can collect in a sinus of any size. Should inflammation be present, the products are retained, and keep up and increase the irritation to the mucous membranes. In addition to this the opening during inflammatory processes becomes much narrowed by the swollen mucous membrane forming its circumference and that lining the fronto-nasal canal and adjacent parts, so that considerable obstruction to free discharge of the contents of the sinus and ventilation of the space can take place. In consequence, an acute inflammation in the nose, such as, for instance, occurs in influenza, may cause more severe damage to its lining membrane, and leave some chronic catarrhal or degenerative changes in the sinus after the nasal mucous membrane has completely recovered. This applies with even greater force to the other sinuses. The ostium of the antrum and that of the sphenoidal sinus are each placed high in the wall of the sinus, so that a large accumulation of irritating discharge lies in the sinus until it either overflows and empties itself by syphonage or until the head is placed in a position which allows the pustoescape.

Some ethmoidal cells may not drain into the nasal cavity direct, but into a neighbouring cell, so that they are in even a worse position for proper drainage and ventilation. The swollen mucous membrane of such structures as the middle turbinate may come in contact with the opening of those cells which drain directly into the nose, so that their drainage is still more interfered with. An ordinary well-marked case of suppuration of the antrum presents few difficulties in diagnosis, the patient complaining of nasal discharge, which is influenced by the position of the head hawking up the discharge from the throat in the mornings, and nasal obstruction, headache, possibly supra- or infra-orbital neuralgia and depression. A well-marked frontal sinus suppuration presents somewhat similar symptoms, with tenderness on pressure on the floor of the sinus. There is more difficulty in diagnosing suppuration of the ethmoidal or sphenoidal cells, but the presence of pus in the nose and naso-pharynx and the post-nasal dropping complained of, put one on the right track. These patients are fortunate in that their nasal condition is self-evident and troublesome. It must be remembered, however, that pus is not to be seen at all times in the nose, even in a well-marked case of suppuration.

There are, however, numbers of cases of chronic sinus inflammation which are not suppurative. There may be an increased secretion of a mucous or sero-mucous character, but pus only appears when, owing to some other cause, the inflammation becomes more acute. Many of these cases of non-suppurative inflammation and those in which suppuration is present, but is scanty, consult their doctor for some entirely different symptoms. This is particularly the case when only the ethmoidal or sphenoidal cells are affected, and it is only on being questioned that the patient mentions what he calls "a nasal catarrh," or he may be totally unaware of anything abnormal in his

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NASAL SINUS INFLAMMATION

to that side. There are a number of ways in which it is produced, such as:—

- 1. Swelling of the mucous membrane with pressure on, or irritation of the nerves.
- 2. Swollen mucous surfaces coming into contact and pressing against each other.
- 3. Stasis following obstruction to drainage. The swollen mucous membrane around the opening of the sinus blocks the exit of the pus, which gradually accumulates and remains under tension until this can overcome the obstruction. In these cases the headache, which may be at first slight, increases in severity until the discharge takes place, when it rapidly disappears until the pus again accumulates.
 - 4. Re-absorption of toxins formed in the sinus.
- 5. Disturbance of the lymph and blood circulation at the base of the brain.

In many cases the headache is brought about by the pressure on the septum and outer wall of the nose of an enlarged middle turbinate. A lady consulted me recently, giving a history of constant headache for nearly two years. It was not severe, as a general rule, but made her feel dull and heavy. She had lost her sense of smell, and could not taste things properly. She had occasionally a free discharge of watery fluid. Both middle turbinates were large, pressing on her septum, and blocking her olfactory fissure. The greater part of both middle turbinates was removed, and six months later she told me she had not had a headache since, and was able to smell and taste well.

Yankhaur calls attention to a point which is valuable in diagnosis. Inhalations of steam will shrink the mucous membrane, stimulate the ciliated epithelium, and promote drainage. If a patient suffering from recurrent headache has even temporary or partial relief the headache is of nasal origin.

Applications of cocaine and adrenaline to the nasal

nose. Some may say that they are subject to colds, particularly in damp weather, or that they have to avoid draughts as they are liable to chills. As an example of the indefiniteness of symptoms of sinus disease, Sir St.Clair Thomson quotes the case of an officer home on leave from India who consulted three physicians on account of a general malaise and slight irregular pyrexia. None gave a definite diagnosis, but one suspected tubercle, one malaria, and the other specific disease. He was then seen by Sir St.Clair Thomson, who found and opened a suppurating sphenoidal cell, and all symptoms disappeared.

Amongst the symptoms from which many patients, who make no complaint of nasal symptoms, suffer, headache is the commonest, and headaches caused by some nasal abnormality are much commoner than is generally supposed. As Hajek says, many cases of sinus disease with slight nasal symptoms go through their lives with the diagnosis of chronic headache without its occurring to anybody that the headache might be caused by disease in the nasal sinuses.

The headache may be present every day or only intermittently. Generally it is present for some hours each day, oftenest appearing in the morning, and is increased by bending over, straining, or mental work. Indigestible food, alcohol, and tobacco increase its severity, which often does not bear any relationship to the severity of the disease. Some cases with very marked disease make little or no complaint, while others with little manifest disease suffer very severely. The headache of frontal sinus and antral disease is generally in the frontal region. Ethmoidal disease produces headache at the vertex or pain between the eyes, The headache of sphenoid trouble is sometimes occipital, sometimes at the vertex, and at other times in the tempero-parietal region. In a number of cases the headache is worse on the affected side or confined

NASAL SINUS INFLAMMATION

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mucous membrane will relieve nasal headache.

Neuralgic pain is another symptom which may cause a patient to seek advice, and not mention nasal trouble. It is produced in the same way as the headache, and by reflex action on the branches of the fifth nerve. As examples I may quote three cases:—

- 1 and 2. In one there were attacks of severe infra-orbital and supraorbital neuralgia, with, from time to time, swelling of the cheek. There was nothing to be seen in the nose except some hyperplasia of the mucous membrane over the uncinate process. In the other the neuralgia was in the infra-orbital and malar region, and she complained of headache and lack of concentration. There was apparently nothing abnormal in the nose. Neither suffered from nasal obstruction or discharge. There was no pus in either case when the antrum was washed out and transillumination appeared normal. X-ray photographs, however, showed a denser shadow in the antrum in both patients on the affected side. They were treated by washing out and injecting collosol argentum, but without improvement. I then operated, and in each case the mucous membrane of the antrum was found to be thickened and undergoing polypoid degeneration. Their symptoms immediately cleared up after operation.
- 3. Recently I saw a patient whose radiogram showed considerable destruction of the outer wall of the antrum. He had suffered from neuralgic pain, and consulted his dentist who had had the radiogram taken. A considerable quantity of foul pus was washed out of the antrum, but the patient had been quite unaware of any nasal trouble.

Patients will sometimes consult their doctor on account of their mental or general condition, thinking that they are run down. They say that they are out of sorts and lacking in energy, or that their brain feels fogged, and that they are unable to concentrate, and have a feeling of weight in the head, and are depressed. They give a chain of symptoms closely resembling neurasthenia, and as time goes on a number do become neurasthenic. The headache makes any concentration an increasing effort, and they become dull, irritable, and introspective and forgetful, and often get a vacant and strained expression. Some do not seem to notice their decrease in energy, though their friends and relations will speak of it.

Nasal obstruction, causing deficient aeration of the

NASAL SINUS INFLAMMATION

blood, disorders of the intracranial circulation, and absorption of toxins, all help to produce this condition, and the first and the last help to bring about the anæmia which is often present. It is well to remember that a patient with ill-defined symptoms, such as a feeling of malaise, loss of energy and depression, with nothing to account for it, may be suffering from sinus disease. They may feel temporarily benefited by a change owing to the stimulus of new surroundings, but soon lapse into their old condition. Attacks of giddiness and swimming in the head may occur, especially when the frontal or sphenoidal sinus are affected.

Owing to mouth breathing and the discharge trickling down the pharynx, a chronic pharyngitis develops, which, as time goes on, develops into a dry pharyngitis. The discharge is often seen in crusts on the pharyngeal walls in the morning, and is only got rid of by violent coughing and hawking which may produce retching and vomiting. Sometimes the pharynx shows red, fleshy bands on the lateral walls, and when only one side is affected in this way some sinus disease of that side of the nose is almost certain to be present. Skillern considers this condition pathognomonic of sinus disease. A number of cases of sinus suppuration develop dyspepsia and flatulence owing to constant swallowing of the discharge, and constipation is very common.

As time goes on a number of cases of sinus suppuration develop chronic laryngitis, and bronchial catarrh may be directly caused by the nasal condition. In some cases the laryngitis and hoarseness are the only subjective symptoms, and for these only the patient seeks advice. The examination of a patient with chronic laryngitis is incomplete until the condition of the nose is ascertained.

One symptom almost pathognomonic of sinus disease is the sense of an offensive smell in the nose, which is accentuated by sniffing. This is caused either by the

presence of some gas-producing organism, or by some putrefaction of the secretion by saphrophitic bacteria. This offensive smell is noticed by the patient, but only occasionally detected by those in contact with him, being the reverse to what is found in atrophic rhinitis. Loss of the sense of smell is more or less present in nearly all cases of sinus suppuration. Nasal polypi are common. Eczema of the vestibule of the nose, particularly if one-sided, should always arouse suspicion of sinus disease. It may remain for years, in spite of treatment, until the nasal condition is rectified. Recurrent attacks of facial erysipelas or ædematous inflammation of the face are also conditions which should make one think of sinus inflammation.

S. Darling, who made investigations of the sinuses in fifty-two post-mortems, thirty-seven of which were pneumococcal cases, says: "It has been found that 92 per cent. of all pneumococcal infections coming to autopsy show in a very marked degree more or less typical pneumococcal inflammation of one or more of the nasal accessory sinuses. A point of great importance is the age of the sinus affection, which has been appreciably greater than that of the lung or meningeal affection; 91 per cent. of lobar pneumonia cases showed a sinusitis. All cases of acute pneumococcal meningitis presented an inflammation of one or more nasal sinuses, the middle ear and mastoid cells being normal." Postmortem examinations of septic meningitis show that in a large number of cases the original septic focus was in the nasal sinuses, though that source was unsuspected during life.

In all cases of asthma it is well to be certain that the nose is in a healthy condition. We do not definitely know how asthma is caused, but there is a tendency to look upon all eases as due to anaphylaxis, and to ignore any nasal cause. In spite of this every rhinologist can quote cases greatly benefited by removal of

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disease or abnormality in the nose.

It has been demonstrated that the receptive nucleus of the fifth nerve breaks up under the motor nucleus of the vagus, and is thought to communicate with it. It is also known that there is a close connection through associated fibres between the vaso-motor nerves of the nose, coming from Meckel's ganglion, and which are under control of the vaso-motor centres in the medulla and the vagus. Irritation of these nasal nerves may easily irritate and upset the balance of the vagus supply to the lungs, and so produce asthma, or render a person more susceptible to the effects of some substance which produces asthma.

Ethmoidal disease, not necessarily suppurative, appears to produce asthma more frequently than disease of other sinuses. Many cases of asthma have been cured, and many more given long periods of relief by the removal of nasal polypi and the subjacent inflamed tissue.

The close relation of the nasal sinuses to the orbital cavity and optic nerve may result in a number of ophthalmic and orbital complications when the former are diseased. It is not uncommon to find some intermittent conjunctival suffusion and puffiness of the eyelid, and the patient may complain of defective vision for reading or fine work. Many cases of optic neuritis and atrophy, narrowing of the field of vision, lachrymation and blepharospasm have been found due to sinus suppuration, while orbital cellulitis and dacryocystitis are perhaps oftenest caused by this condition.

There is one point which is worth attention. In chronic rheumatism, rheumatoid arthritis, neurasthenia, etc., the greatest care is taken to look for any source of auto-intoxication; the gums are examined for pyorrhæa, the teeth X-rayed, the intestinal content bacteriologically examined, etc., but in how many of these cases is there any attention paid to the condition of the nose?

presence of some gas-producing organism, or by some putrefaction of the secretion by saphrophitic bacteria. This offensive smell is noticed by the patient, but only occasionally detected by those in contact with him, being the reverse to what is found in atrophic rhinitis. Loss of the sense of smell is more or less present in nearly all cases of sinus suppuration. Nasal polypi are common. Eczema of the vestibule of the nose, particularly if one-sided, should always arouse suspicion of sinus disease. It may remain for years, in spite of treatment, until the nasal condition is rectified. Recurrent attacks of facial erysipelas or ædematous inflammation of the face are also conditions which should make one think of sinus inflammation.

S. Darling, who made investigations of the sinuses in fifty-two post-mortems, thirty-seven of which were pneumococcal cases, says: "It has been found that 92 per cent. of all pneumococcal infections coming to autopsy show in a very marked degree more or less typical pneumococcal inflammation of one or more of the nasal accessory sinuses. A point of great importance is the age of the sinus affection, which has been appreciably greater than that of the lung or meningeal affection; 91 per cent. of lobar pneumonia cases showed a sinusitis. All cases of acute pneumococcal meningitis presented an inflammation of one or more nasal sinuses, the middle ear and mastoid cells being normal." Postmortem examinations of septic meningitis show that in a large number of cases the original septic focus was in the nasal sinuses, though that source was unsuspected during life.

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Acute Intussusception in an Adult, probably due to Round-worm.

By FRANCIS KEANE, M.D., N.U.I., D.P.H. Ballina, Co. Mayo.

SLER says: "Intussusception is an affection of children, and is of all forms of intestinal obstruction the one most readily diagnosed. The presence of tumour, bloody stools, and tenesmus are the important factors." In the adult, acute intussusception is a very rare finding, and it is extraordinarily rare to find it confined to the small intestine. It is exceptional, too, to find the cause of the irregular peristalsis that brought about the condition.

The presence of a foreign body acting as a local stimulant to the gut, is looked upon as the direct cause; in this case a large round-worm was found between the outer and the returning layers, and in the absence of other exciting stimulus, it can safely be assumed that this was the determining factor.

On Wednesday night, October 15, 1924, M. L., a female, aged 30 years, was taken ill with paroxysmal colicky pains in the abdomen, and vomiting of gastric contents; before morning the bowels moved slightly, and a round-worm was passed with some feeling of relief.

On Thursday morning, October 16, a local doctor, who was passing, saw her, and suspecting nothing urgent, prescribed treatment for colic, but as she got no relief I was called in about two hours after.

There was no history of previous abdominal trouble, save the passing of a round-worm about a week before,

one the night before, and that her bowels occasionally required the aid of a gentle laxative.

Her appearance belied serious abdominal trouble, but she was having severe colicky pains, and vomiting, which came on at the height of the pain. The vomitus was of a watery bilious nature. There was a tendency to pass urine frequently, and with some slight difficulty. The pulse rate was 80, the temperature normal.

On inspection, there was nothing specially noticeable, except a suspicion of swelling above and to the right of the umbilicus. There was no visible peristalsis. Palpation revealed no great tenderness over the abdomen generally, I was able to sink the hand deeply, giving rise to but little discomfort. But two inches above and to the right of the umbilicus, there was a little more resistance, and more tenderness on pressure. I could make out nothing in the shape of a tumour, and found all hernial rings normal. Percussion did not assist, and rectal examination was negative.

I gave a soap-and-water enema, but very little fæces or flatus came away, and no blood; this she thought gave her some ease. I then gave hypodermically, morphine ½ gr. and atropine 1/100 gr.

On visiting the patient again six hours later, the patient was entirely changed for the worse, and I learned that she had got no relief as a result of the morning visit, and that her mother had given her three good teaspoonfuls of cascara an hour after I left.

This evidently added fuel to the fire, for now she had an unmistakable abdominal facies, a pulse rate of 120, and a thready pulse, temperature 99°, the abdomen tender all over, but with no general distension. Inspection showed a definite bulging, extending from an inch above and to the right of the umbilicus down to the pelvis. Owing to the tenderness, and fearing I might add to the mischief by handling, I refrained from palpating deeply, but I could make out a very definite

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The Value of Pituitary Extract in Labour.

By D. J. O'K. MURPHY, M.D., Medical Officer, Cloyne Dispensary, Co. Cork.

In the two following abnormal cases of parturition both patients were located in remote villages on the sea coast. No trained assistance was available, and pituitary extract obviated in both cases the necessity of administering an anæsthetic:—

The first case was a primipara at full term. It was thirty-six hours since labour set in, and on examination I found the os rigid, and a slow cozing hamorrhage. The lower uterine segment was markedly cone-shaped, with partial placenta prævia. I injected 1 c.cm. of pituitrin deep into the buttocks, and in a few minutes the hamorrhage ceased; in one hour and twenty minutes the cervix completely retracted, and the os dilated so well that the forceps delivery was quite a simple procedure. No further hamorrhage took place and there was no placental trouble.

The second case was a four-para at full time; the history elicited was that the pains started after the patient had retired to bed in the early part of the night. On examination I found coils of a prolapsed cord in the vagina, complicated with a breech presentation. Pulsations were strong in the prolapsed cord. The mother showing no symptoms of fatigue, I temporized for some hours, and I had a stroll on the beach to think it out. I made no effort to replace the cord, my experience in these cases being that it usually came down again a lot quicker than the time taken to replace it, nor, indeed, would the undilated state of the os allow me to do so. I cleared out the rectum with an enema, and after waiting for three and a quarter hours I found the os soft and yielding. I then injected 1 c.cm. of pituitrin, and the pains that were scarcely perceptible before set in vigorously; in ten minutes the child's buttocks were dilating fully the vulval outlet. I gave no assistance whatsoever, with the exception of raising the infant's buttocks off the bed to bring the body in a direct line with the pelvic curve. The woman delivered herself, the after-coming head gliding clear of the pubic arch. Lifting up the child's trunk towards the mother's umbilious released the head from the vagina, and after a few slight smacks the infant cried out. There was no after hæmorrhage, and no trouble with the placenta.

resistance in the area mentioned, and on light percussion a definite dullness.

On rectal examination I found a boggy tumour in the pelvis to the right of the uterus, more distinctly when palpated through the vagina, and tender to the touch. Here was an afebrile local condition that had assumed massive proportions with great rapidity.

I consulted with my colleague, who had seen her that morning, and we decided that immediate operation was imperative. Owing to the late hour, poor transport facilities, and the distance to the nearest operating theatre (30 miles), she did not reach there until morning.

Her condition on arrival was scarcely worse than on the night before, but still such as warranted a poor post-operative prognosis.

On opening the abdomen, a beef-tea coloured fluid poured out, and an intussusception about 12 inches long, composed solely of small intestine, was found. Signs of gangrene had already set in, so complete resection was done. She lived, however, for two days only.

On opening the resected intussusception, a large round-worm was found lying dead near the bottom of the cul-de-sac between the intussuscipiens and the returning layer.

CONCLUSIONS.

It is possible that worms are a more important factor in the intussusceptions of children than they are given credit for.

Intussusception once started may advance very rapidly.

A perfectly soft flaccid abdomen may be present in the early or non-inflammatory stage of intestinal obstruction.

· Blood in stools, tenesmus, and fæcal vomiting are uncommon symptoms in cases of intussusception involving the small intestine only.

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Treatment of Fissures of the Breast.

It is pointed out that the best treatment of fissures and ulcerations of the nipple is to prevent them by preparing the breasts before parturition. During the last month of pregnancy the breasts should always be washed most carefully every morning and evening, the nipples dried carefully and sponged with 90 per cent. spirit. The smallest ulceration must be attended to whenever it appears, as, untreated, it quickly becomes larger. It should be bathed four times daily with warm boracic lotion (10 per cent.), and, after drying, the erosion should be touched with a 20 per cent. solution of methylene blue. If it does not heal within forty-eight hours the breast should be completely rested, the milk being removed with a breast-pump.—(Le Progrès Médical, January 24, 1925, p. 146.)

Treatment of Respiratory Diseases by Chlorine.

E. B. Vedder and H. P. Sawyer have employed the inhalation of chlorine, in a concentration of 0.02 mgm. per litre, in the treatment of certain respiratory diseases, with successful results. Of 85 cases of coryza 60 were cured and 22 improved; of 9 cases of acute bronchitis 6 were cured and 3 improved; of 6 cases of acute laryngitis 2 were cured and 4 improved; of 12 cases of chronic bronchitis 2 were cured and 10 improved; and of 21 cases of whooping cough 4 were cured and 10 improved. Cases of hay-fever, asthma, pneumonia, and tuberculosis received no benefit from this treatment, and such patients should be excluded. A special apparatus has been designed in order to make the treatment available to the medical profession in general; this consists of a small box in which there is an electric motor driving a blower to deliver air at the outlet of the equipment at a rate of 10 to 12 cubic feet a minute. The chlorine is generated by the electrolysis of hydrochloric acid, the current being supplied by two dry cells.—(Journal of the American Medical Association, January 31, 1925, p. 361.)

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Therapeutics of Ultra-Violet Rays.

E. and H. Biancani give a summary of the results of treatment by ultra-violet rays during the past year, noting particularly their good effect in rickets, in the atrophies and hypotrophies of childhood, in disorders of the internal secretions, in skin diseases, and in surgical tuberculosis. MM. Lesné and de Genues (ibid.) publish an article on the treatment of rickets in young children by ultraviolet rays. They state that their effect is not only local, but general, and suggest that they have an action on the endocrine glands. V. Lichnitzki (ibid.) has had excellent results in the treatment of neuralgia and neuritis by ultra-violet rays, and states that the treatment not only relieves the pains but cures the conditions .-(Paris médical, December 20, 1924, p. 505.)

Diet in Typhoid Fever.

J. Chalier points out that, although the importance of the diet in typhoid fever is universally recognized, in practice physicians differ very much in their ideas of a suitable dietary, although all agree that fluids should be given in abundance. Dr. Chalier recommends that cool or cold drinks, such as lemonade, etc., should be given every hour; some physicians have insisted on the value of alcohol in typhoid fever, but Dr. Chalier counsels moderation in its employment, and considers old wines and champagnes the best form in which to give it. He insists on the value of milk, which may well be, in the opinion of many, the only food in certain stages of the disease; the milk should be taken in sips, and about 250 grams (3viii) every two hours. Dr. Challer is personally in favour of a mixed diet; when the temperature is high, cooling drinks, and, every three hours, milk or beef tea; a little old wine (Banyubs) may also be given. As the temperature comes down there may be added to the dietary a cream of rice or milk soup, and the yolk of an egg beaten up in milk or in the soup. At a later stage the soups may be given several times a day, and vegetable soups may also be given, soft-boiled eggs, fruit jelly. Solid food should not be given until the temperature has been normal for five days .- (Clinique et Laboratoire, September 30, 1924, p. 172.)

Treatment of Psoriasis.

H. Mathias suggests that psoriasis is not merely an affection of the skin, but is rather a manifestation of hereditary syphilis of far distant origin. He points out that joint conditions, for example, somewhat resembling those of tabes, are sometimes found in persons suffering from psoriasis. Local treatment must, therefore, be secondary to general treatment, twelve to twenty intravenous injections of novarsenobenzol being given at daily intervals; each injection should be followed by the administration of 2 milligrams of adrenaline by the mouth. As regards local treatment, the following ointment is recommended :-

g. 1 (grs. xv) Acid. salicyl. Vaseline - - - g. 100 (3 iii) -(Journal des Praticiens, February 14, 1925, p. 104.)

PRACTICAL NOTES

Therapeutic Uses of Parathyroid Gland.

W. N. Berkeley points out that the physician, in employing parathyroid gland therapeutically, must first of all be sure that he is using a standardized preparation, as much of the material on the market, he affirms, is valueless. In the tetany of gastric dilatation, of pregnancy, of rickets, and in epidemic tetany parathyroid is a rational and efficient remedy. In post-natal convulsions of infants large hypodermic doses should be tried, in the hope that the convulsions may not be due to brain injury. In post-operative tetany the hypodermic use of parathyroid should not be delayed. Berkeley mentions the possible value of parathyroid in chronic suppurative processes, especially varicose ulcers, recalling the work published by Vines. The great service of parathyroid to therapeutics is, however, in the treatment of paralysis agitans; Dr. Berkelev states that it is successful in 60 to 70 per cent. of patients who have given it a fair trial. Improvement is usually slow; satisfactory progress is generally noticed for a few months, and then the remedy should be continued in sufficient doses to maintain the status quo; carefully managed cases often get on very comfortably with the remedy for many years. The dosage is tentative; usually two or three tablets a day, after meals, and one hypodermic injection at bedtime are enough.-(Boston Medical and Surgical Journal, February 12, 1925, p. 296.)

Treatment of Impotency in Young Men.

W.J. Wallace says that the terms impotence and sterility are often used interchangeably; sterility, however, is the inability to procreate offspring, while impotence is the inability to perform the sexual act. Upon the young man the physical and psychic effects of impotence bear most heavily: finding himself impotent at so young an age he is despondent, morose, and melancholy, and sometimes contemplates suicide. Treatment must be preceded by a very thorough general and local examination of the patient; eye reflexes and the condition of the teeth and tonsils are noted, hernia and redundant scrotum searched for, the superficial and deep reflexes elicited, and the possibility of varicocele and any other abnormality excluded. Local treatment consists in massage of the prostate and seminal vesicles, at first every other day, meatotomy being performed if the orifice is not large enough to admit a size 30 sound. A large sound should always be employed and left in the canal for ten or fifteen minutes at each treatment, as this acts as a stimulant to the circulation, giving tone and strength to the relaxed urethral canal. This is followed by a deep instillation of one of the salts of silver. Constitutional treatment includes the administration of a good general tonic containing a large percentage of strychnia, insistence on a well-balanced diet, with meals at regular hours, and the institution of systematic exercises especially designed to strengthen the perineal muscles and induce better circulation through the prostate region. Dr. Wallace gives details of typical cases.—(Journal of Urology, February, 1925, p. 193.)

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Therapeutics of Ultra-Violet Rays.

E. and H. Biancani give a summary of the results of treatment by ultra-violet rays during the past year, noting particularly their good effect in rickets, in the atrophies and hypotrophies of childhood, in disorders of the internal secretions, in skin diseases, and in surgical tuberoulosis. MM. Lesné and de Gennes (*ibid.*) publish an article on the treatment of rickets in young children by ultraviolet rays. They state that their effect is not only local, but general, and suggest that they have an action on the endocrine glands. V. Lichnitzki (*ibid.*) has had excellent results in the treatment of neuralgia and neuritis by ultra-violet rays, and states that the treatment not only relieves the pains but cures the conditions.—(*Paris médical*, December 20, 1924, p. 505.)

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Reviews of Books.

Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anamia and Asthma. By Arthur F. Hurst, M.A., M.D., F.R.C.P. Pp. 320. 15 plates and many illustrations in the text. London: William Heinemann, Ltd. 21s. net.

This is a reprint of essays and addresses which have appeared in medical journals during the last ten years. They have, however, been revised and expanded so as to represent the author's considered opinions at the present time. An authority so versatile as Dr. Hurst was bound to cover a variety of subjects, and in this volume we have scholarly papers on the diagnosis of nervous disorders of the stomach, gastric diathesis, Addison's anæmia, achalasia, colitis, appendicitis, cholecystitis, asthma, hysteria in organic disease and injury of the central nervous system, and contractures, all of which show evidence of careful observation and sound deduction. In most of the essays Dr. Hurst gives an interesting account of the earlier observations of the disorder he is considering, and his desire to assign credit to those who first accurately described the condition leads him to advocate the change of name from pernicious anæmia to Addison's anæmia. The book is well illustrated, the plates including a good portrait of Addison.

The Nervous Patient. By MILLAIS CULPIN, M.D., F.R.C.S. Pp. 305. London: H. K. Lewis & Co., Ltd. 10s. 6d. net.

This well-written book is intended primarily for the general practitioner, and there is no doubt that he will find it both interesting and useful. Dr. Culpin has dealt with his subject in a way which will disarm many critics of psychoanalysis. He frankly informs us that when in France, during the early years of the war, the views of Freud were brought to his notice by a colleague, he ridiculed them and could not believe that they had any possible application to clinical actualities. At Maghull, however, where it was his duty to treat the so-called shell-shock cases, he found by degrees that many of the principles enunciated by Freud were quite obviously borne out by practical experience. Dr. Culpin, however, by no means confines himself to psychoanalysis. One by one, he considers each of the etiological factors which have been held to play a part in the causation of the neuroses, or, as he prefers to call them, the minor psychoses. The close association of asthma, exophthalmic goitre, and epilepsy with minor psychoses is well brought out. The book deals mainly with the principles of diagnosis, and scattered through its pages are many hints which the practitioner, too busy to read the large text-books on psychotherapy, will find of great value. A chapter on eye symptoms by Mr. W. S. Inman, and one on the major psychoses by Dr. Stanford Read, conclude a book which can confidently be recommended.

Medical Jurisprudence and Toxicology. By WILLIAM A. BREND, M.A., M.D., B.Sc., Barrister-at-Law. Pp. 317. Fifth edition. London: Charles Griffin & Co., Ltd. 10s. 6d. net.

THERE are two methods adopted in reviewing books. One is to read the book under review from beginning to end; the other is to pick out chapters dealing with special subjects, upon which the reviewer is a recognized authority, and to see how the author deals with them. Both methods have been used in the present case, and the author has passed through the two ordeals unscathed. This is a high compliment. The book, therefore, is not only excellently adapted for the use set out, viz., a handbook for students and practitioners, but will also be found useful by experts in medical jurisprudence and toxicology. Take, for instance, chapter V (the signs of death), chapter X (matters involving the sexual functions), chapter XV (the legal relationships of insanity and other abnormal states of mind), chapter XIX (general facts with regard to poisons), and chapter XXIV (poisons of vegetable origin). What more could be said upon those particular subjects? Even if the book under review had been much more bulky in size the information contained therein could not possibly have been more complete.

Clinical Aspects of the Electrocardiogram. By Harold E. B. Pardee, M.D. 220 pages and 56 illustrations. London: William Heinemann, Ltd. 21s. net.

This is an excellent book, well got up and full of useful suggestions. The summaries at the end of the sections are especially good.

Chapter 1 is a general introduction including errors of technique to be avoided. Chapter 2 is devoted to the normal electrocardiogram and its variations. Chapter 3 describes changes associated with different forms of cardiac hypertrophy. Chapter 4 describes the changes due to myocardial abnormality. The observations in connection with the T-wave and its relation to the coronary arteries are specially good. Chapter 5 deals with the clinical significance of abnormal waves. In Chapter 6 is discussed disturbances of abnormal rate and rhythm. Chapter 7 deals with their clinical aspects. Chapter 8 outlines the analysis of cardiographic records and their co-relation with clinical findings, etc. Chapters 9 and 10 deal with the theory of the electrocardiograph and its use.

The remarks on quinidine are of interest and offer a reasonable explanation why the drug is dangerous. The account of paroxysmal

tachycardia, although accurate, is not very far reaching.

The foregoing are but minor criticisms, since the work is really a first-class one, full of useful information and thoughtful and helpful suggestions. It can be recommended with confidence.

Preparations, Inventions, Etc.

ACETYLARSAN.

(London: Messrs. Dick, Coates & Co., 41, Great Tower Street, E.C.3.)

Acetylarsan is a neutral solution of the salts of oxyacylaminophenylarsenic acids, prepared by the well-known French firm, the "Usines du Rhône." Investigations carried out by French authorities have proved its efficacy in the treatment of syphilis, and it has been officially adopted by the French Ministry of Hygiene. It is stated to be better tolerated than the arsenobenzol compounds, and certainly the technique of its administration is simpler; it is put up in solution in ampoules containing 3 c.cm., and can be injected subcutaneously or intramuscularly as desired.

SALVITÆ.

(Astoria, Greater New York, N.Y.: American Apothecaries Company. London Agent: Mr. Lionel Cooper, 14, Henrietta Street, W.C.2.)

Salvitæ is an effervescent preparation, containing the following proportion of ingredients:—

Strontii lactas		-	-	-	-	-	0.30
Lithii carbonas	-	_	-	-	-	-	0.15
Caffein et quinir	ıæ cit	ras	-	-	-	-	0.80
Sodii-forma-ben	zoas	-	-	-	-	-	1.60
Calcii lacto-phos	sphas	-	-	-	-	-	0.15
Potassii et sodii			ras	-	~	-	59.00
Magnesii sulphas	S	-	-	-	•	-	8.00
Sodii sulphas	-	-	-	-	-	-	30.00
•							
							100.00

It is recommended particularly for the treatment of rheumatism and gout, and also in dyspepsia, constipation, gingivitis, pyorrhea alveolaris, cystitis, phosphaturia, renal and hepatic calculi, and other allied conditions, in all of which it may be calculated to prove of considerable value.

PREMIDO IODIZED SALT.

(Winsford, Cheshire: Messrs. Geo. Hamlett and Sons, Ltd.)

In America and in New Zealand highly successful results have been reported of the prevention of goitre by the use of iodized salt, and in the present state of our knowledge of the etiology of goitre there does not appear to be any better method of prophylaxis than its regular use. Premido iodized salt contains pure salt (sodium chloride), to which has been added a small but definite percentage of an iodide. It is a preparation that can be confidently recommended.

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HE drawbacks inseparable from the use of plain liquid medicinal paraffin are well known. Many patients cannot tolerate its insipidity; whilst admixture with the intestinal content is seldom attained, with consequent leakage from the rectum.

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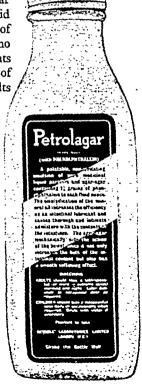
unobtainable by any other method of medication. The medicinal paraffin is so finely divided that it is thoroughly disseminated throughout the fæcal mass, gives maximum lubrication and does not leak; the agaragar is specially prepared so as to yield on incubation in the intestinal tract many times its original bulk, forming a bland gelatinous mass which is completely and readily eliminated, acting indeed as a soothing emollient to the inflamed intestinal mucosa.

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	Calcii lacto-phos	pha	3 -	-	-	-	-	0.12
	Potassii et sodii	citro	-tartı	as	-	-	-	59.00
	Magnesii sulphas	8	-	-	~		-	8.00
	Sodii sulphas	-	•	-	-	-	-	30.00
								100.00

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Whatever claims are made for other infants' foods, none, when subjected to the test of analysis, can show the same close approximation to breast milk as Humanised Trufood. The latter, as the following figures clearly prove, makes available for the first time a product which, whilst containing nothing but the solids of milk, is practically identical in composition with human milk when reconstituted with water.

	Breast	Cows'	Humanised
	Milk	Milk	Trufood
Lactose	6.5	4.7	6.25
Fat	3.3	3.5	3.45
Casein	0.9	3.0	0.80
Lactalbumen	0.4	0.3	0.60
Salts	0.2	0.8	0.65
Water	88.7	87.7	88.25
	100.0	100.0	100.0
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Samples adequate for full clinical trial, together with descriptive literature, on request.

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THE ONLY SCIENTIFIC ALTERNATIVE FOR BREAST FEEDING

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#### APPOINTMENTS.

No charge is made for the insertion of these notices: the necessary details should be sent before the 14th of each month to The Editor, THE PRACTITIONER, Howard Street, Strand, London, W.C. 2, to secure inclusion.

- AITKEN, WILLIAM S., M.B., Ch.B., Glas., appointed Medical Officer and Public Vaccinator to the Govanhill District of the Govan Parish Council, Glasgow.
- ARNOTT, T. F., M.B., Ch.B.Glas., appointed Certifying Factory Surgeon for the Bovey Tracey District, Co. Devon.
- BAIRD, J. B., M.B., Ch.B.N.Z., appointed House Surgeon to the Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.t.
- BARR, WILLIAM, M.D.Glas., appointed Medical Officer of Health to the County Borough of Rotherham.
- BEALE, PEYTON T. B., F.R.C.S. Eng., appointed Consulting Surgeon to King's College Hospital
- BENN, E. C., M.B., Ch.B.Liverp., appointed House Physician at St. Luke's Hospital, Bradford
- BYRD, C. B., L.R.C.P.Lond., M.R.C.S., appointed Certifying Surgeon under the Factory and Workshop. Acts for the Patterdale District of the County of Westmorland.
- DAVEY, J. B., M.B., M.R.C.S., L.R.C.P., D.T.M., appointed Hon. Pathologist to Cheltenham General Hospital.
- EYANS, Sir THOMAS J. CAREY, F.R.C.S.Eng., appointed Honorary Assistant Surgeon to St. Paul's Hospital for Skin and Genito-Urinary Diseases.
- FAULKNER, H. A., M.R.C.S., L.R.C.P., appointed Honorary Anæsthetist to Willesden General Hospital, Harlesden Road, N.W.10.
- GAMLEN, HAROLD E., M.B., B.S. Durh., D.P.H., appointed Honorary Physician in charge of the Electrical and Massage Departments, Royal Victoria Infirmary, Newcastle on-Tyne.
- GRIFFIN, A. J. B., M.B., Ch.B. Liverp., D.P.H., appointed Assistant Medical Officer of Health, Walsall.
- HARVEY, F. MELVILLE, M.R.C.S., L.R.C.P.. appointed Member of the Honorary Medical Staff at Willesden General Hospital, Harlesden Road, N.W.10.
- HOLDEN, O. M., M.D. Birm., D.P.H., appointed Medical Officer, Borough of Blackburn, vice W. A. Daley, M.D.Lond., D.P.H.Camb.
- KIRKMAN, A. H. B., F.R.C.S.Ed., appointed Certifying Factory Surgeon for the Staplehurst District, Co. Kent.

- LAMBERT, Miss MARJORIE A. M., M.R.C. S. Eng., L. R. C. P. Lond., appointed House-Surgeon to the New Sussex Hospital for Women and Children, Brighton.
- LIDDERDALE, F. J.; M.B., B.S. Durh., D.P.H., appointed Honorary Physician to Cheltenham General Hospital.
- LUNN, J., M.B.Glas., appointed Certifying Factory Surgeon for the Bruton District, Co. Somerset.
- MACDONALD, A. R., M.R.C.S., L.R.C.P., appointed House-Surgeon to the Norfolk and Norwich Hospital, Norwich.
- MollRaith, W. M., L.R.C.P. and S.Edin., appointed Certifying Factory Surgeon for the Friockhelm District, Co. Forlar.
- McKELVIE, B., M.B., Ch.B.Vict., appointed House Surgeon to the Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.r.
- McLISTER. D., M.D.Belf., appointed Cettliying Factory Surgeon for the Stillington District, Co. Durham.
- PIDCOCK, B. HENZELL, M.B., B.S. Lond., F. R. C. S. Eng., appointed Assistant Surgeon to the Royal Hants County Hospital.
- SHAW, WILLIAM FLETCHER, M.D.Manch., appointed to the Chair of Obstetrics and Gynmcology in the University of Manchester.
- SMITH, N. ROSS, M.B., Ch.M.Syd., F.R.C.S.Eng., appointed Honorary Surgical Registrar to the West London Hospital, and Surgical Registrar to the Royal National Orthopædic Hospital, London,
- SPROTT, NORMAN A., M.A., M.Ch., B.M.Oxon., appointed Member Eton College Medical Board.
- WADE, A. R., L.M.S.S.A., appointed Certifying Factory Surgeon for the Highbridge District, Co. Somerset.
- WALKER, KENNETH, F.R.C.S. Eng., appointed Honorary Surgeon to St. Paul's Hospital for Skin and Genito-Urmary Diseases.
- WHITE, H. P. WINSBURY, F.R.C.S. Eng., appointed Honorary Assistant Surgeon to St. Paul's Hospital for Skin and Genito-Urinary Diseases.
- WILLIAMS, R. T., M.B., B.S.Lond., appointed Certifying Factory Surgeon for the Lianfairfechan District, Co. Carnarvon.
- WYATT, W., M.B.Ed., appointed Assistant Medical Officer, Fountain Mental Hospital, Tooting, S.W.

#### THE FRENCH NATURAL MINERAL WATER

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And the other State Springs of Vichy (Property of the FRENCH STATE)

FERMENTATIVE DYSPEPSIA.



THEN the secretion is vitiated in quality, and the motricity of the stomach weakens, that organ dilates, and the gastric stagnation allows the micro-organisms of many ferments to develop. Quite a series of acids are then to be met with (butyric, lactic, acetic, etc.), which not only irritate the mucosa, but further, after their passage into the intestine, become absorbed by the lymphatics and swept into the cir-Vichy-Célestins, by its culation. slightly stimulating action, clears out the stomach, and thus avoids stagnation and consequent fermentation. As in addition to doing this it modifies stomachal metabolism, the secretions return little by little to their normal physiological condition.

CAUTION .- Each bottle from the STATE SPRINGS bears a neck label with the word "YICHY-ÉTAT" and the name of the SOLE AGENTS:-

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Samples Free to Members of the Medical Profession.

The Advantages of

# Prescription (Humanised) Glaxo

The reasons put rorward in this series of Advertisements for the great value of Prescription Glaxo in so many cases of infant feeding where the supply of breast milk is inadequate, are based on the results of clinical and laboratory experience, the details of which will be willingly supplied to any enquirer.

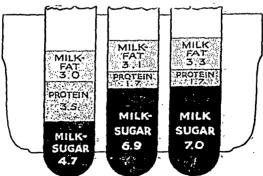
#### The Vitamin Content

Does milk contain an adequate supply of vitamins for the proper growth and health of infants?

It has been conclusively proved that summer-milk from pasture-fed cows is quite adequate in this respect. On the other hand, when the diet of the cow is largely, or entirely; deficient in green vitamin-rich fodder, and when sunlight is almost absent, then the milk cannot be regarded as satisfactory. These are the conditions under which winter-milk is produced in this country.

All Prescription Glaxo comes from summer-milk, since it is made in New Zealand from the milk of cows that are fed on sunny pastures all the year round; it is therefore a vitamin-rich milk.

In the preparation of Prescription Glaxo the milk reaches a temperature of 97°C., and that only for rather less than three seconds. During that time the milk is protected from contact with atmospheric oxygen, so that oxidation is reduced to a minimum. It is now known that temperature itself plays little part in the destruction of vitamins. Oxidation, especially for a long period and at high temperatures, is the chief cause of such destruction. Since these conditions are not present in the manufacture of Prescription Glaxo, it follows that Prescription Glaxo can be relied upon give a completely adequate supply of fat-soluble vitamins, even though it is the only food that the infant is receiving.



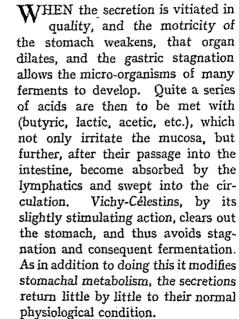
RAW COWS PRESCRIPTION HUMAN

THE FRENCH NATURAL MINERAL WATER

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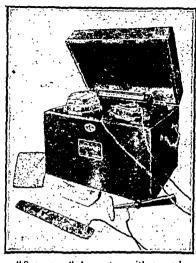
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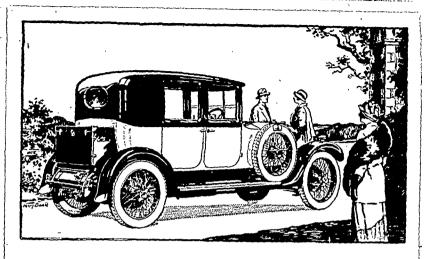
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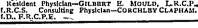
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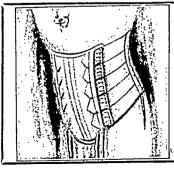
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Up to the present time I.M.S. officers have been employed both in the civil and military departments of Government, and have been interchangeable be-tween the two. The practice as regards employment tween the two. The practice as regards employment in the civil and military side of the service has been as follows:

At the beginning of his career an officer was employed on the military side, which has medical charge of the Indian Army. If he remained in military employ he held a post on the staff of a Station Hospital, or a Specialist post, or a post on the administra-tive staff of the Army, promotion being on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major-General. selection to the ranks of Colonel and Major-General. He could, however, if he chose, apply after 2 years' Indian military service to be registered as a candidate for transfer to the civil side, from which appointments are made to civil surgeoncies, established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, and to the specialist services (for example, public health and bacteriological and research departments and the professorships at the Madical Schoolsh Surk templers nearmally tools place. Medical Schools). Such transfers normally took place after about 7 years' service in military employment.

The Lee Commission has, however, recommended

certain changes in the organization of the Medical Services in India, and in view of their recommenda-Services in India, and in view of their recommenda-tions only military employment can be guaranteed to officers entering the Indian Medical Service at the present time. It is, however, guaranteed that they will be eligible for civil employment under such conditions of service as may be made applicable to officers in future appointed to the military medical service, as the result of decisions taken on the Lee Commission Report.

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pay. Colonels - 2,200 to 2,500) according to the Major-Generals 2,750 to 3,500) appointment held. The above rates include an overseas allowance of

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mensem for the next 6 years, and thereafter Rs. 250 per mensem, which will be admissible to officers of non-Indian domicile only.

It may be pointed out to intending candidates that the initial rates of pay for the Indian Medical Service and all Government Departments are based on the assumption that the majority of newly-appointed officers will be bachelors. It is also the case that an officer when junior is liable to more frequent changes of station than later on in his service, and he may therefore be put to considerable expense for transfers if he has a family. Officers, therefore, who join the service married may have considerable difficulty in living within their pay during the first few years of their service.

Extras.-In addition to the above rates, officers in military employment, when in command or second in command of the larger Station Hospitals, receive special allowances. On the civil side there are public health, bacteriological, research, and professorial appointments carrying special enhanced rates. Special rates of pay are attached to the administrative appointments open to officers in both branches of the Service.

#### PRIVATE PRACTICE.

Executive medical officers in both civil and military employment may attend persons unconnected with Government service provided their duty admits of it. Candidates are, however, informed that while serving on the military side the opportunities for private practice are not great.

#### WAR SERVICE.

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There are additional pensions ranging from fras-to f350 per amum for officers who have held high administrative appointments as Colonels or Major-Generals. These pensions are not subject to the reduction mentioned above.

#### PASSAGES.

Officers on appointment are, when possible, provided with passage to India by transport. When such accommodation is not available passage at the public expense is provided by private steamer or passage allowance is granted if preferred. The wives and families of officers who are married prior to the

Continued on page xv.

#### INDIAN MEDICAL SERVICE-Continued from page xiv.

date of the officer's embarkation on first appointment to the Indian Medical Service will also be provided with passage to India at the public expense under the same conditions as those applicable to the officers themselves.

During the course of their service, officers of the Indian Medical Service in military employ are entitled to passage from India to the United Kingdom and back whenever they are granted sick leave by a Medical Board in India.

If married, their wives and families will also be granted passages to and from India to accompany them. Further, when the families themselves are, upon the recommendation of a Medical Board in India, invalided home for the preservation of life, they may be granted free passage, subject to the

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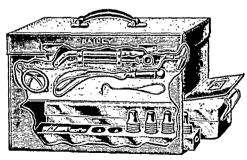
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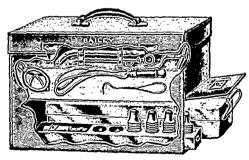
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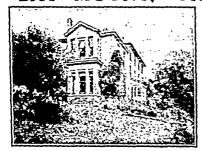
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When these internal secretions begin to fail at the period of the menopause, Hormotone acts both by substitution and homostimulation.

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"They are recommended for use in cases of oral sepsis, a condition to which much attention has been called in recent years as a source of gastric troubles and general constitutional disturbance, and are also useful in tonsillitis, pharyagitis, &c."

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"In the experiments tried the Jujube proved to be as effective bactericidally as is Creosote."

Mt. W. A. DIXON F.I.C., F.O.S.,
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I have made a comparative test of 'Eumenthol' Jujubes and Creosote, and find that there is little difference in their bactericidal action."

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Largely prescribed in

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Baths prepared with SULPHAQUA possess powerful antiseptic, antiparasitic, and antalgic properties. They relieve intense itching and pain, are without objectionable odour and do not blacken the paint of domestic baths.

#### SULPHAQUA SOAP

Extremely useful in disorders of the sebaceous glands, and for persons subject to eczematous and other skin troubles.

In Boxes of 1 and 1 doz. Bath Charges: 2 doz. Toilet Charges; and 1 doz. Soap Tablets.

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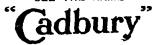
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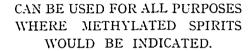
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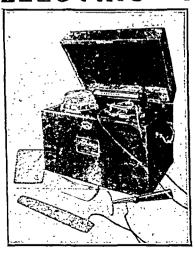
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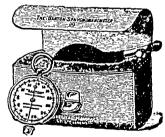
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December 31st. 1924

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Authorised Capital	-	~	-	-	_	-	-	-	-	-	£45,200,000
Subscribed Capital	_	-	-	-	-	-	-	-	-	-	39,233.073
LIABILITIES £.											
Paid-up Capital -	-	•	_	_	-	-	-	-	-	-	11,976,823
Reserve Fund -	-	-	-	_	-	-	-	_	-	-	11,976,823
Current, Deposit, an	nd att	ier Ac	cour	ts (i	nclud	ine I	rofit	Bala	nce)	-	357,411,722
Acceptances and En	oaden	nents	_	-,-	-	-	-	-	- 1	-	39,203,319
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Money at Call and S	HOLL 1	Notice	-	-	-	-	•	-	-	-	42,725,269
Investments -	~	-	~	-	-	-	-	-	-	-	
Bills Discounted -	~	-	-	-	-	-	•	-	-	-	50,818,762
Advances to Custom	ers at	nd oth	er A	ccom	nts	-	-	-	•	-	190,691,324
Liabilities of Custon	sers f	or Acc	enta	nces	and F	endas	temer	ıts	-	_	39,203,319
Bank Premises -	1010 1	-	. open					-	-	-	5,763,551
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pany Ltd	•	-	-	-		-	•	-	-	-	300,000
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# UVAMAMMOID COMPOUN

It is composed of specially prepared and unusually active Ovarian and Mammary Gland extracts, and conveyed in soluble gelatine capsules. The Ovarian and Mammary Gland hormones become synergistic when reproductive life ceases.

This preparation provides adequate compensation for the cessation of the elaboration of the internal secretion of the Ovaries, which is responsible for the disorders of the Climacteric. It also provides, in

the contained Mammary Gland extract, a valuable uterine sedative.

The Ovamammoid Compound, when administered at the menopause, restores the lost balance between the Circulatory and Nervous systems, re-establishes nervous and vascular equilibrium, augments oxidation, and enhances metabolism. The "Flushings" disappear, the Palpitation, Irritability, Mental Depression, Psychasthenia, and Asthenia cease to be manifested, and the patient is carried through the period in comfort.

A TYPICAL REPORT READS: "I am glad to be able to tell you that the patient for whom I prescribed the Ovamammoid Compound is now so remarkably " well that further treatment is not required.

"Previous to my employment of this preparation she had suffered very severely for a long period from 'flushings' and nervous instability. The case was the most "aggravated in my experience, the patient being a constant sufferer by day and night. "Her life was a miserable one. I employed every remedy I could think of previous "to the Ovanianmoid Compound, but with no response. She began to improve very "soon after commencing to take the Ovanianmoid Capsules, and the 'flushings' ceased " in a short time.

"Morcover, the severe Mental Depression disappeared as treatment proceeded, as

" did her obsessions.

"There has been no return of any of her former symptoms.
"I am greatly pleased with this notable result, and so is my patient, her family, " and her friends. "----M.D., M.R.C.S., L.R.C.P. (Lond.)."

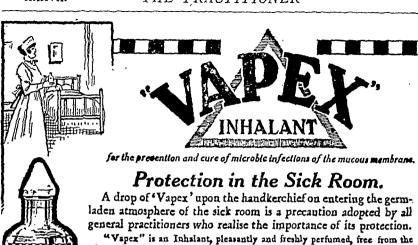
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(Pioneers of Organotherapy in Great Britain),

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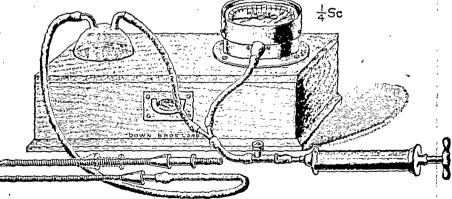
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#### NEW APPARATUS FOR THE TREATMENT OF GONORRHEA, ETC.



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(Vide British Medical Journal, 10th June, 1916.)

GRANDS PRIX:
Paris, 1900. Brussels, 1910. Buenos Aires, 1910.



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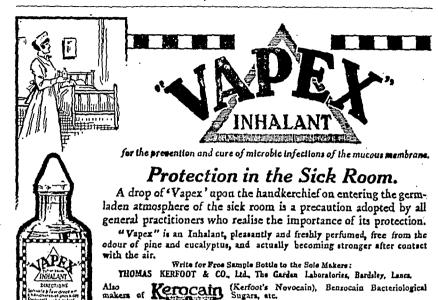
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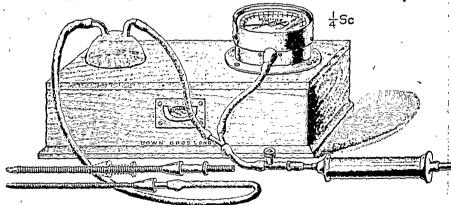
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Arthritic dyspepsia.
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Congestion due to excessive or improper feeding.

Congestion due to cirrhosis (before the cachectic stage).

The diathetic congestions of diabetic, gouty and obese persons.

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- 2.—Sterilization of the gut starts immediately after the animal is killed.
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### **Affirmation**

of the importance of vitamins in diet is definitely established by observation of the readiness with which "deficiency diseases" respond to treatment with a balanced, vitamin-active nutrient.

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may be considered facile princeps.

Vitmar is an elegant emulsion of Ox-fat, Wheat Extract, Egg-Yolk, and fresh Fruit Juice; attractively palatable and readily absorbed even in extreme conditions.

It is definitely indicated in:

Rickets

Gastro-Intestinal disorders

Anæmia Tuberculosis

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Marasmus

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Independent Observers have shown that, as compared with Fresh Milk, the vitamin activity of VITMAR is 10 times in vitamin A

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The Advantages of

# Prescription (Humanised) Glaxo

The reasons put forward in this series of Advertisements for the great value of Prescription Glaxo in so many cases of infant feeding where the supply of breast milk is inadequate, are based on the results of clinical and laboratory experience, the details of which will be willingly supplied to any enquirer.

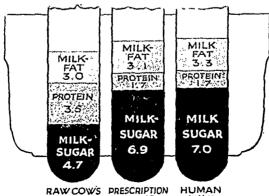
#### The Vitamin Content

Does milk contain an adequate supply of vitamins for the proper growth and health of infants?

It has been conclusively proved that summer-milk from pasture-fed cows is quite adequate in this respect. On the other hand, when the diet of the cow is largely, or entirely, deficient in green vitamin-rich fodder, and when sunlight is almost absent, then the milk cannot be regarded as satisfactory. These are the conditions under which winter-milk is produced in this country.

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In the preparation of Prescription Glaxo the milk reaches a temperature of 97°C., and that only for rather less than three seconds. During that time the milk is protected from contact with atmospheric oxygen, so that oxidation is reduced to a minimum. It is now known that temperature itself plays little part in the destruction of vitamins. Oxidation, especially for a long period and at high temperatures, is the chief cause of such destruction. Since these conditions are not present in the manufacture of Prescription Glaxo, it follows that Prescription Glaxo can be relied upon give a completely adequate supply of fat-soluble vitamins, even though it is the only food that the infant is receiving.



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MILK

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Glax-ovo contains a concentrate of a factor fundamentally important in controlling calcium metabolism. The Glaxo Laboratories have separated the anti-rachitic vitamin from its richest known source—active cod-liver oil—and highly concentrated it. There is only one food that contains this concentrate of the anti-rachitic vitamin, and that is Glax-ovo.

Glax-ovo also contains milk, cocoa, and extract of malt, so that it is adequately supplied with all the known vitamins. Particularly for growing children, whether for promoting calcium metabolism or for supplying extra easily-digested nourishment in a very agreeable form, Glax-ovo is suggested for regular inclusion in the daily diet.

Further, Glax-ovo is very well suited as a supplementary food for universal use. Its unusually agreeable flavour has already gained it a general welcome as a substitute for tea, coffee, or cocoa.

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Fat - - - - 13'3%
Protein - - - 18'3%
Carbohydrates - - 62'2%
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Moisture - - 2'5%
and Vitamin Concentrate.

If you have not already received a free tin (and literature), the makers of GLAX-OVO will gladly send them for personal use or for patients. Write to Medical Dept., GLAXO, 56 Osnaburgh Street, London, N.W.I.

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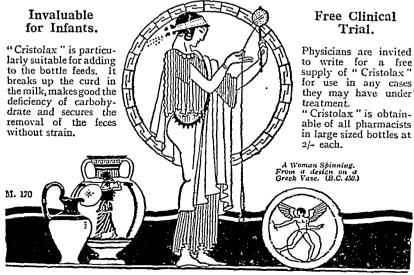
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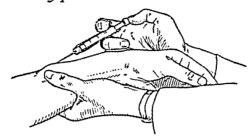
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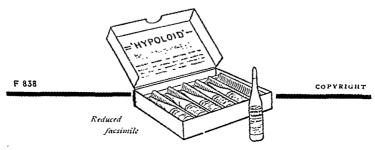
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Cocaine Hydrochloride

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For complete list, see Wellcome's Medical Diary

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# THE TACTITIONER

THE LEADING MONTHLY MEDICAL JOURNAL FOUNDED IN THE YEAR 1868

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BY SIR JOHN THOMSON-WALKER, M.B., F.R.C.S.

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BY CHARLES W. CHAPMAN, M.D., M.R.C.P.

Consulting Physician to the National Hospital for Diseases of the Heart.

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BY CHARLES SUNDELL, M.D., M.R.C.P. Senior Physician to the Seamen's Hospital, Greenwich.

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Physician to the Neurological Clinic, Ministry of Pensions, Southampton.

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By R. S. ALLISON, M.D., M.R.C.P.
Assistant Physician, Ruthin Castle; late Medical Registrar, West London Hospital.

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BY R. ST. LEGER BROCKMAN, M.A., M.CH., F.R.C.S. Assistant-Surgeon, Royal Infirmary, Sheffield.

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Brodie's Abscess:

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Resident Surgical Officer, Stockport Infirmary, Cheshire.

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Medical Officer, Corofin Union and Dispensary District.

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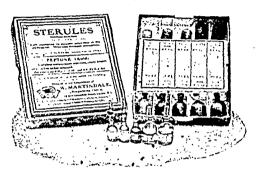
Reviews of Books.

Preparations, Inventions, etc.

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### MARCH 1925

# Chronic Urinary Infection with the Bacillus Coli.

BY SIR JOHN THOMSON-WALKER, M.B., F.R.C.S.

Senior Urologist and Lecturer on Urology, King's College Hospital; Surgeon to St. Peter's Hospital for Stone; Urinary Surgeon, Radium Institute, etc.

N one form or another, as a principal or as a subordinate disease, infection of the urinary tract with the Bacillus coli is one of the commonest of the chronic diseases that the practitioner has to examine and treat. So protean in its character, so varying in its course, and so diverse in its effects, there is difficulty in presenting a clinical picture that will not leave a sense of mental confusion. I shall select, therefore, certain types, admitting on the one hand that they merge insensibly into each other, and on the other that even when described in detail they do not cover the whole field. The three types under which I shall describe the outstanding clinical features are:—

- 1. Chronic cystitis.
- 2. Recurrent cystitis and pyelitis.
- 3. Bacilluria with general toxæmia.

(1.) Chronic Cystitis.

Chronic cystitis, persisting in spite of long continued 181

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(1.) Chronic Cystitis.

Chronic cystitis, persisting in spite of long continued 181 N

treatment with urinary antiseptics and alkalis, and repeated courses of bladder washing, is one of the most troublesome types of case with which the practitioner has to deal. There is frequent micturition which is evenly spaced during the day and at night. The bladder will settle down to a routine of one hour or two-hour micturition in a severe case. urgency of micturition, and there may even be an occasional involuntary leak, especially in the female subject. Pain is a very distressing feature in some cases. It is more common in women, and is so definitely referred to the urethra as to suggest some urethral lesion such as ulceration or an inflamed gland. But, although I have examined many cases very thoroughly with the urethroscope, I have never found anything more than a general swelling of the mucous membrane. When the patient's mind is occupied in some subject of interest the interval of micturition may be prolonged beyond his confirmed habit, and he talks of there being "a good deal of nerves in This mental influence in the his complaint." frequency of micturition is common to all diseases of the bladder, and varies greatly in different patients.

The patient soon finds that certain articles of food increase his symptoms, and he accommodates his diet to this fact. He voluntarily gives up alcohol and avoids irritating foods, such as curries and highly-spiced pepperty dishes. He is afraid of constipation, and often feels worse after a severe purge. There may be an occasional attack of what he and his doctor call "influenza." There is a rise of temperature, backache, and aching of the muscles, and at this time all his symptoms are who muscles, and at this time all his symptoms are with slight variations, but with sometimes year artistence, month after month, and condition in the liter year. There may be some local bladder, such as a growth, stone, or

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#### URINARY INFECTION

diverticula. The gradual development of cystitis, which becomes chronic in old people, should always put the practitioner on his guard. It is frequently due to malignant growth, and may be unaccompanied by hæmorrhage.

#### (2.) Recurrent Cystitis and Pyelitis.

I shall now pass from these cases of persistent chronic cystitis to a second class of case of chronic urinary infection, namely, recurrent attacks of cystitis and pyelitis. The initial acute attack of pyelitis, or pyelocystitis, has settled down, and the patient may consider himself quite well and return to his work. After an interval of weeks or months, or even a year or more, he gets a second attack, and this is succeeded by others. There are two classes of case included under this category.

In one there is persistent infection of the renal pelvis or bladder which flares up at times into an acute attack. The succeeding attacks are usually less severe than the initial attack, but they may vary greatly in severity. The patient, warned by previous experience, knows when an attack is coming on. He recognizes certain prodromal symptoms. During a period of four or five days he feels ill. There is some loss of appetite, a little headache, want of energy, irritability, and the patient is over-sensitive to changes in the surrounding temperature. Almost always there is bowel trouble. If the patient is inclined to constipation the bowels are more difficult to move, flatulent distension in patients subject to it is more pronounced and distressing, patients prone to irritability of the bowel have an attack of diarrhea. Then follows a rise of temperature and an acute attack of pyelocystitis develops. Between attacks there is little beyond a slight irritability of the bladder to draw attention to the persistent infection of the urinary tract. But in these cases signs of chronic

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treatment with urinary antiseptics and alkalis, and repeated courses of bladder washing, is one of the most troublesome types of case with which the practitioner has to deal. There is frequent micturition which is evenly spaced during the day and at night. The bladder will settle down to a routine of one hour or two-hour micturition in a severe case. urgency of micturition, and there may even be an occasional involuntary leak, especially in the female subject. Pain is a very distressing feature in some cases. It is more common in women, and is so definitely referred to the urethra as to suggest some urethral lesion such as ulceration or an inflamed gland. But, although I have examined many cases very thoroughly with the urethroscope, I have never found anything more than a general swelling of the mucous membrane. When the patient's mind is occupied in some subject of interest the interval of micturition may be prolonged beyond his confirmed habit, and he talks of there being "a good deal of nerves in his complaint." This mental influence in the frequency of micturition is common to all diseases of the bladder, and varies greatly in different patients.

The patient soon finds that certain articles of food increase his symptoms, and he accommodates his diet to this fact. He voluntarily gives up alcohol and avoids irritating foods, such as curries and highly-spiced peppery dishes. He is afraid of constipation, and often feels worse after a severe purge. There may be an occasional attack of what he and his doctor call "influenza." There is a rise of temperature, backache, and aching of the muscles, and at this time all his symptoms are worse. Such are the symptoms, and they continue with slight variations, but with monotonous persistence, month after month, and sometimes year after year. There may be some local condition in the bladder, such as a growth, stone, or

#### URINARY INFECTION

smoke. The urine has a peculiar stale-fish odour which is often mentioned by the patient himself. On allowing a specimen to stand the urine remains cloudy, and there is no deposit. Microscopically there are a few cells from the urinary tract, and a few leucocytes, not amounting to pus, but there are myriads of motile bacilli. On culture there is a pure growth of the Bacillus coli. The cystoscope shows a normal bladder or, at most, a few patches of congestion. The ureteric catheter may show infection of the bladder urine alone, or of one or both renal pelves in addition. Here we have an infection of the urine without reaction of the mucous membrane of the urinary tract.

#### EXAMINATION OF A PATIENT.

Success in the treatment of chronic infection of the urinary tract with the Bacillus coli depends upon the accurate localization of the chief focus of infection, and the discovery of the cause of the persistence or recurrence of the infection. This will be readily appreciated by referring to those cases where chronic cystitis is kent up by a pyelitis which gives rise to no symptoms. For this purpose very careful and complete examination is necessary. In either sex the chief focus of infection may be in the upper urinary tract, that is, the kidney, pelvis, or ureter; or in the lower urinary tract, that is, the bladder in the female or the bladder together with the prostate and seminal vesicles in the male. The symptoms may help by pointing to pyelitis or to prostatitis or seminal vesiculitis, and the physical examination may carry the diagnosis a step farther. Examination of the urine may give further help.

It is important in all cases of chronic inflammation of the urinary tract to exclude tubercle, and this applies equally to cases where other bacteria, such as the *Bacillus coli*, are present. In chronic cystitis in

toxæmia, such as I shall describe later, may exist.

The second type of recurrent pyelocystitis is that in which the urine is sterile between the attacks. Here one of two conditions may obtain. There may be some focus of infection in or connected with the urinary tract which is shut off, and from time to time opens up and reinfects the bladder or pelvis; or there may be a reinfection of the urinary tract from some chronic condition of the bowel. The first of these two conditions is found in the male subject where there is a chronic infection of the seminal vesicle which at times pours out infected material into the prostatic urethra and bladder. But this condition occurs also in the female subject where there are no such accessory pockets communicating with the urinary tract. seems likely that some of these cases are due to the passage of the Bacillus coli along the short female urethra, so that an ascending infection takes place.

#### (3.) Bacilluria with General Toxæmia.

This is a type subject to many variations. Toxæmia from urinary infection is not confined to the bacilluria cases. I have already referred to it under chronic cystitis, and, in fact, the signs of toxæmia may be observed in almost any type of chronic Bacillus coli infection of the urinary tract. The cases with bacilluria and toxemia form, however, a striking group, and serve as a basis for discussion of this class of case. Bacilluria is an infection of the urine, usually with the Bacillus coli, but sometimes with other bacteria, where there is no inflammation, or only a minimal amount of inflammation of the urinary tract. The urine is cloudy with an emulsion of bacilli. The urine contains no flakes, and the cloudiness is general haze. On swinging the glass so as to circulate the fluid the urine has a peculiar and characteristic shimmering appearance not unlike drifting cigarette

#### URINARY INFECTION

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#### URINARY INFECTION

#### 5. Treatment of the bowel.

#### (1) MEDICAL TREATMENT.

- (a) Diuretics.—Diuretics form an important part of the treatment of all cases, but more especially cases of acute infection. Barley water, distilled water, and weak tea are good diuretics, and the diuretic waters of Contrexéville, Vittel, and Vichy are useful. Freshlymade infusions of the dried leaves of Buchu or Uva ursi are powerful diuretics, and might be more often used. A definite quantity of fluid in twenty-four hours should always be prescribed, about four to six pints being an average quantity. A disadvantage of the divretic treatment is the distension of the bowel which taking large quantities of fluid produces. And, further, the action of urinary antiseptics and alkalis is impeded by dilution. In the treatment of chronic infection a mild diuresis is beneficial but, apart from acute exacerbations, it is not necessary to attempt the production of a continuous powerful diuresis.
  - (b) Alkalis.—These should be used with the definite purpose of making the urine alkaline, and the guide to treatment should be the litmus paper. The urine in the great majority of cases is hyperacid, and until the reaction is neutral, or slightly alkaline, this treatment cannot have its full effect. The alkalis usually prescribed are the citrate and acetate of potash and bicarbonate of soda. Thirty grains should be given in twenty-four hours, and the dose increased until the reaction of the urine is definitely alkaline. The effect of the alkaline treatment is to neutralize the acid toxins produced by the Bacillus coli. Alkaline urine, such as can be produced by drugs, does not destroy or even inhibit the growth of the Bacillus coli. The alkaline treatment has its most striking effect in cases of acute infection with the Bacillus coli. In chronic infection it has a much more soothing effect than treatment with urinary antiseptics, and in many

the male subject it is necessary to obtain for examination a specimen of the secretion of the prostate and seminal vesicles. This is done by thoroughly washing the bladder and filling it with sterile water. prostate and vesicles are then massaged, and the bladder contents passed into a sterile bottle. Cystoscopy is necessary in order to ascertain whether any condition of the bladder, such as diverticulum, stone, growth, intravesical enlargement of the bladder with residual urine, and to examine the orifices of the ureters. The presence or absence of a stone should be ascertained by radiography.

So extensive an examination may not be necessary in every case, but it must be remembered that we are dealing with a chronic case of urinary infection, and the success of treatment will depend upon the accuracy with which the chief focus of infection is localized and the cause of its persistence ascertained. The cystoscope and the urethral catheter have shown that such quiescent disease may exist in the bladder or the renal pelvis, and without these methods of examination the treatment of chronic urinary infection guesswork.

#### TREATMENT.

#### The treatment consists of:—

- 1. Medical treatment:
  - (a) Diuretics.
  - (b) Alkalis.
  - (c) Urinary antiseptics.
- 2. Vaccine Therapy.
- 3. Local treatment:
  - (a) Bladder washing.
  - (b) Renal lavage.
- 4. Operation :--

(a) Drainage of the renal pelvis.
(b) Drainage of the bladder.
(c) Prostatectomy and seminal vesiculectomy.

#### URINARY INFECTION

prescribed alone in a draught of water between meals. I have suggested keratin coated tablets,1 and in America 2 pills coated with salol have been given, to pass the hexamine through the acid gastric juice. In practice it is found that such precautions are rarely necessary. The antiseptic action of hexamine depends upon the liberation of formaldehyde by the action of the acid urine. Some idea of the strength of the antiseptic solution that may be developed in the urine can be gained by the following estimate: If a patient takes 15 grains of hexamine four times in twenty-four hours and excretes 55 ounces of urine in that time containing 75 per cent. of the hexamine, there would be a concentration of hexamine of 1 in 500; and if 5 per cent. of this were split into formaldehyde and ammonia the concentration of formaldehyde would be 1 in 10,000. This strength in vitro will kill 80 per cent. of the bacteria in two hours and 100 per cent. in twenty-four hours.3

If the same condition could be reproduced in the human body as can be produced in the laboratory the matter would be quite simple. Unfortunately, however, many factors modify the antiseptic action. Among these are:—

- 1. The amount excreted.
- · 2. The degree of acidity of the urine.
  - 3. The dilution by artificial or pathological diuresis.
- 4. The time during which the hexamine is in contact with the acid urine.
  - 5. The amount of mucus in the urine.

It is not possible to discuss all these factors here, but a word may be said in regard to one of them, namely, the time during which the hexamine is in contact with the acid urine, for this explains many of the cases where urinary antiseptics fail.

Time is important in two ways:-

1. The longer an antiseptic acts the greater will be its killing

chronic cases where urinary antiseptics have failed to destroy the infection alkalis may be used while local treatment is in progress. I shall refer to the alternation of alkalis and antiseptics later.

(c) Urinary Antiseptics.—A urinary antiseptic is administered by the mouth, is absorbed from the bowel, circulates in the blood, is excreted by the kidney, and forms a secretion of varying strength in the urine. Salol and boracic acid are among the minor urinary antiseptics, while the formaldehyde series (hexamine) form the most important.

Salol has a mild action in the urine and a similar action in the intestine. It is sometimes employed for this combined action. I use it only as an alternative to the other antiseptic drugs when they are badly borne or have been administered over a long period, and give it especially where bowel symptoms are prominent. Boracic acid has a mild antiseptic action, but has the disadvantage of upsetting the digestion. Hexamine (urotropin, hexamethylene tetramine) is the best urinary antiseptic we possess. It is a combination of ammonia and formaldehyde, and acts only by the liberation of the formaldehyde in an acid medium. When in combination with ammonia, and the combination is maintained in any alkaline medium, the drug has no antiseptic action.

Hexamine is frequently prescribed with an acid salt or with an alkali. There is an objection to both of these prescriptions. If mixed with an acid the hexamine will be split, and free formaldehyde, which is irritating to the stomach, is present in this mixture. If prescribed with an alkali the acidity of the urine is reduced and the formaldehyde not liberated in the urine, and the drug has no antiseptic action. The acid gastric juice will split hexamine, especially in cases of hyperacidity, and the irritating formaldehyde is liberated in the stomach. Hexamine is therefore

## URINARY INFECTION

raising the doses to the limit of tolerance (20 to 25 grains three times daily) as shown by intense bladder irritation and a little blood in the urine, but without obtaining good results.

It is now a number of years' since I advocated the prophylactic use of urinary antiseptics before and after operation on the bowel and female pelvie organs, when hæmatogenous infection of the urinary tract frequently follows the operation; and also before and after parturition and operations on piles when retention of urine is probable and the use of the catheter likely to become necessary. So far as I know this use of urinary antiseptics is entirely neglected. It appears to me that a urine fully charged with antiseptic will probably turn the scale against a passing bacilluria becoming a permanent infection of the urinary tract. Urinary antiseptics of the formaldehyde series act only in an acid medium, and there are many cases where it is impossible to obtain this in an infected urine. There is urgent need therefore for a urinary antiseptic that will act in an alkaline urine. Methylene blue has long had a reputation as a urinary antiseptic, but the action is somewhat ill defined. It has the advantage of acting in an alkaline medium. I use it a good deal and combine it with sandal-wood oil and, if the urine is acid, with hexamine. It is especially useful in staphylococcal infections. Promising work is done in America by Davis and others in this line. Anilino dyes of various composition were used. Of 204 aniline dyes investigated there were fifteen which were excreted by the kidneys, antiseptic in the urine, and were relatively untoxic. In all these aniline dyes, the colon bacillus is more resistant than the staphylococcus. The antiseptic action of all was exhibited in a higher degree in alkaline than in acid urine.

Urotropin has been used by intravenous injection. Cooke has treated acute and chronic infections of the

power.

2. Time is required for this liberation of formaldehyde from hexamine. The change from formaldehyde into ammonia and formaldehyde is slow and gradual.

This time factor destroys the utility of the drug as a urinary antiseptic in a large number of cases. mine on this account is of little value in kidney diseases or in infection of the renal pelvis. In the bladder the diseases in which it is most wanted are those in which polyuria and frequent micturition are common, so that the length of time during which hexamine is in contact with the acid urine is too short for complete splitting. The same applies to cases where the bladder is continuously drained by catheter and where a fistula is present. After prostatectomy or bladder operation, hexamine is practically valueless until the bladder is closed. Further, we have to recognize the intolerance of the acutely inflamed bladder to a high degree of acidity of the urine, and in the acute stage of urinary infection the administration of acidifying drugs and urinary antiseptics may only increase the severity of the symptoms without producing any effect on the disease.

In the acute stage of infection and in the exacerbation of a chronic infection, it is better to leave aside the question of antiseptic treatment altogether and direct attention to soothing the mucous membrane.

In chronic infection the continuous administration of hexamine over long periods is often disappointing in its results. It is better to alternate the drug with other antiseptics such as salol, or a course of antiseptic treatment may be given for a fortnight or three weeks, followed by a course of alkaline treatment. This alteration is especially useful when the bladder is irritable and intolerant of acidity and of formaldehyde.

The usual dose of hexamine is 10 or 15 grains three times daily. I have tried short intensive courses,

#### URINARY INFECTION

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Urotropin has been used by intravenous injection. Cooke 6 has treated acute and chronic infections of the

urinary tract by intravenous infusion of small doses of urotropin. In acute cases he administered \(\frac{1}{4}\) grain daily, and in chronic cases a similar dose with intervals of two or three days. Ten or twelve injections were required on an average in seventy-five patients.

Cantoni has used intravenous injections of 2.2 to 4.4 grams of urotropin every third or fourth day in cases of pyelitis of pregnancy. There is no such difficulty in absorption of urotropin as to necessitate the intravenous method of administration as a routine method, or to counterbalance the obvious disadvantages of the method. In a few acute cases where vomiting is a prominent feature, or where hyperacidity makes oral administration difficult, the intravenous method may find a place. Recently Young and Hill 8 have published an account of a short series of cases of general septicæmia, and of urinary infection treated by intravenous injection of mercurochrome and of gentian violet. Cure after injection was obtained in a few cases, in others there was improvement, while in some no improvement was obtained. Both of the dyes were used in a solution of 0.5 per cent, and 1 c.cm. per kilogram of body-weight was injected. A second injection of gentian violet was given after an interval of six hours. The injection of methyl violet has been followed by an alarming cyanosis, due to the circulation of the dye in the blood. This passed off in The pulse may a few hours and caused no harm. become slow and the blood-pressure drops. In very feeble patients cardiac stimulants may be required.

Mercurochrome is said to have a selective action on the staphylococcus and the Bacillus coli but no effect on the streptococcus. Gentian violet is claimed to be efficacious in staphylococcus infection only. My experience of this method is limited to a few cases, in all of which it was used in the later stages of severe infection (pure staphylococcal, Bacillus coli, mixed infection

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#### URINARY INFECTION

of *Bacillus coli* and streptococcus). In none of these cases was the cause of the infection influenced by the treatment. The method is at present under trial, and no definite statement in regard to its efficacy can therefore be made.

#### (2) VACCINE THERAPY.

A few years ago vaccine therapy was heralded as a method which would revolutionize surgery. At the present time it is reduced to a secondary position in the treatment of urinary infection. The fact that a chronic case of urinary infection of many years' standing may suddenly clear up spontaneously after an acute exacerbation, and show no tendency to recur leads me to suppose that vaccine therapy, if properly handled, might give better results than it does at the present time. The subject of vaccine therapy was discussed at great length at the Second Congress of the International Society of Urology at Rome in April, 1924. The general feeling appeared to be that, although individual cases of improvement or cure might be produced, no statistics could be produced that showed a definite percentage of success with the method. I transcribe the conclusions of Professor L. S. D. Dudgeon,9 who delivered one of the introductory addresses :---

- 1. Vaccine therapy is useless in pure bacilluría.
- 2. The best results are obtained in "first attacks" of acute coli infection in doses of 25 million up to 2,000, employed at intervals of a week.
  - 3. In chronic cases it is unusual to effect a cure by vaccine therapy; although the symptoms may be relieved, the urine remains infected. Larger doses of vaccine can be employed than in the acute cases and there is much less risk of increasing the doses rapidly.
  - 4. It is essential to employ an autogenous colon vaccine or a vaccine made from the same "group."
  - 5. Aggravation of the symptoms during treatment with vaccines suggests that a more or less enclosed, inflammatory focus is present. In cases where there is a unilateral septic nephritis present, vaccine

urinary tract by intravenous infusion of small doses of urotropin. In acute cases he administered ½ grain daily, and in chronic cases a similar dose with intervals of two or three days. Ten or twelve injections were required on an average in seventy-five patients.

Cantoni has used intravenous injections of 2.2 to 4.4 grams of urotropin every third or fourth day in cases of pyelitis of pregnancy. There is no such difficulty in absorption of urotropin as to necessitate the intravenous method of administration as a routine method, or to counterbalance the obvious disadvantages of the method. In a few acute cases where vomiting is a prominent feature, or where hyperacidity makes oral administration difficult, the intravenous method may find a place. Recently Young and Hill 8 have published an account of a short series of cases of general septicæmia, and of urinary infection treated by intravenous injection of mercurochrome and of gentian violet. Cure after injection was obtained in a few cases, in others there was improvement, while in some no improvement was obtained. Both of the dyes were used in a solution of 0.5 per cent, and 1 c.cm. per kilogram of body-weight was injected. A second injection of gentian violet was given after an interval of six hours. The injection of methyl violet has been followed by an alarming cyanosis, due to the circulation of the dye in the blood. This passed off in a few hours and caused no harm. The pulse may become slow and the blood-pressure drops. In very feeble patients cardiac stimulants may be required.

Mercurochrome is said to have a selective action on the staphylococcus and the Bacillus coli but no effect on the streptococcus. Gentian violet is claimed to be efficacious in staphylococcus infection only. My experience of this method is limited to a few cases, in all of which it was used in the later stages of severe infection (pure staphylococcal, Bacillus coli, mixed infection

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bladder work, but their lumen is small, so that it is difficult to get a powerful flow in and out of the bladder. The eye of a metal catheter is one of the worst examples of the work of the instrument maker. It is little more than a slit. The best instrument for washing the bladder is the cannula of an evacuating apparatus used in litholapaxy. The lumen is wide and the eye very large. The disadvantage is that the instrument is straight as far as the beak. I have had metal catheters constructed with a large eye and lateral flanges at the proximal end to aid manipulation.

I prefer to use a large bladder syringe as it is possible to graduate the pressure and to estimate the resistance, but a douche can with rubber tubing and a suitable nozzle is a useful method. The old-fashioned rubber tube and glass funnel is a good method, if somewhat tedious. The fluids that may be used are very numerous. As a preliminary to washing the bladder with an antiseptic solution, I have found the following method useful in cases with much mucus and pus.

The urine is tested with litmus and if found to be alkaline the bladder is washed out thoroughly with a weak solution of acetic acid (acid acetic B.P., 20 minims to the pint). If on the other hand the urine is highly acid I use a solution of bicarbonate of soda ( $_5$ i to the pint) for the preliminary washing. The antiseptic wash is then used and will get into contact with the walls of the bladder now freed from muco-pus.

The antiseptic washes that will be found useful are:—

Nitrate of silver (1 in 15,000); Oxycyanide of mercury (1 in 10,000); Boracic acid (half saturation); Permanganate of potash (1 in 10,000); Peroxide of hydrogen (1 in 20 of 10 vols.); Argyrol (1 in 5,000); Mercurochrome (1 in 10,000).

It is important to use weak solutions in large quantity (at least three pints), and to avoid over-distending

therapy is useless and may be definitely harmful.

I have tried the method of immuno-transfusion, that is, the infusion of the blood from an unimmunized healthy individual, but so far with disappointing results. Defibrinated blood may be used and is equally good with unaltered blood although containing fewer leucocytes.

Some years ago I tried the prophylactic use of vaccines in cases when I was about to operate on the urinary organs, as for enlarged prostate and bladder growths. I was unable to detect any difference in the results I obtained, and have now for a number of years given up this use of vaccines.

#### (3) LOCAL TREATMENT.

(a) Bladder Washing.—Bladder washing is suitable for cases of subacute and chronic cystitis, when the infection is confined to the bladder. In acute cystitis the introduction of an instrument is very painful and the bladder is intolerant of distension by fluids and extremely sensitive to contact with antiseptic solution. There is, moreover, the danger of producing an ascending pyelitis or where subacute or chronic pyelitis is present or causing an acute exacerbation. Before embarking on a course of bladder washing in chronic cystitis the cause of the persistence of the infection should be ascertained, and this will involve cystoscopy to exclude local conditions, such as diverticulum or stone, and catheterization of the ureters to ascertain if quiescent pyelitis be present. A detailed description of bladder washing is unnecessary here, but my experience of checking failures suggests the following hints:-In washing the bladder the mechanical effect should always be borne in mind. As large a catheter as can be passed without causing pain should be used. Silkwove coudé catheters are useful for this purpose for the eye is large. Rubber catheters are easier to boil and manipulate if the practitioner is not accustomed to

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In many cases it does. The recurrent attacks cease, the cystitis clears up, and the sample of urine from the renal pelvis is sterile. But this is not invariably the case. At the end of a course of washing, the urine from the renal pelvis may be much improved but still infected. The distressing bladder symptoms have completely disappeared, but there is the probability of recurrence at a future date, and further courses of washing may be required. In these cases, however, the relief of symptoms is such that the patient is satisfied with the treatment, and will return for a further course if the bladder again becomes trouble-The criterion of cure is the bacteriological examination of the urine, not the disappearance of symptoms. Persistence of infection of the renal pelvis, in spite of lavage, may be due to a number of causes:-

The use of too weak solution.
 Too long intervals between treatments.
 Dilatation of the renal pelvis.
 Stone in the renal pelvis.

pronounced than in the adult.

Recurrence of infection of the renal pelvis after the urine has been found sterile is due to reinfection from the bowel, and demands careful and prolonged bowel treatment or in some cases operation. Kretschner and Helmholz 11 have recommended, on the experience of eleven cases, the treatment of pyelitis of infancy and childhood by means of renal lavage. The age of the patients thus treated varied from seven months to tenand-a-half years, and all cases were girls. Sterile urine was obtained in nine of the eleven cases. My inclination is against such methods of treatment in infants and young children. The authors overlook the fact that there is a strong tendency towards complete recovery

#### (4) OPERATION.

in the pyelitis of childhood, a tendency far more

(a) Drainage of the renal pelvis.—Some years ago I 197 O

the bladder. At the end of the bladder wash I usually instil half an ounce of pure collosol argentum into the bladder and leave it, and the patient retains it as long as possible. Other instillations may be used with or without a preliminary washing such as gomenol, two drachms of 5 per cent. solution in oil, iodoform emulsion half an ounce. Failure to cure cystitis by bladder washing may be due to mistakes in technique, such as want of thoroughness, too strong solutions, too small a quantity of solution, the use of too small a catheter, or to the mucus being so thick and tenacious that the antiseptic never reaches the bladder wall. But failure is more often due to incomplete examination and mistaken diagnosis.

- (b) Renal Lavage.—Where proof has been obtained that the focus of infection lies in the renal pelvis, lavage of the renal pelvis is a very valuable method of treatment and may be the only method by which a cure is brought about. The method demands skill and experience in urethral catheterization and care in the selection of cases. Certain cases are unsuitable for renal lavage:—
- 1. Acute pyelitis with high temperature (except some cases of pyelitis of pregnancy).
- 2. Chronic and subacute cases where rigors follow the introduction of the ureteral catheter.
  - 3. Cases where there is infection of the prostate and vesicles.
- 4. Cases where there is incurable infection of the lower urinary tract, such as that accompanying malignant growth of the bladder and sacculated bladder.
- 5. Cases where there is obstruction in the lower urinary tract, such as enlarged prostate.
- 6. Cases where there is dilatation of the renal pelvis, even of moderate degree.
  - 7. Cases where calculi are present in the renal pelvis.

Renal lavage is most useful in cases of persistent pyelitis where there are constant symptoms or recurrent attacks, and in cases of chronic cystitis secondary to pyelitis. Does this method cure pyelitis?

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static irrigation of the urethra and bladder, Belfield's method of vaso-puncture and injection, and finally in some cases removal of the prostate and seminal vesicles by operation. In a number of cases I have found it necessary to remove the prostate and vesicles, and I carry out the operation by a suprapubic transvesical method.¹² The results have been highly satisfactory in carefully selected cases.

#### (5) TREATMENT OF THE BOWEL.

I have constantly referred to the intimate relation between the bowel and infection of the renal pelvis. Let me close my remarks by insisting once more upon the necessity for thorough treatment of the bowel in all cases of urinary infection. The treatment will consist in the administration of bowel antiseptics, in the treatment of atony of the bowel wall and other causes of constipation; the operative treatment of piles, chronic appendicitis, and cholecystitis may also arise for discussion.

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operated on several cases of persistent pyelitis by nephrotomy, and placed a double tube in the renal pelvis. A constant stream of mild antiseptic was passed through the tubes for ten days. This treatment is only suitable for the most severe cases. It is most likely to be successful when there is a moderate degree of dilatation of the renal pelvis. Where there are recurrent rigors this form of drainage should be discussed.

(b) Drainage of the bladder.—This may be accompanied by: -(1) Tying a catheter in the urethra. (2) Suprapubic cystotomy. Tying a catheter in the urethra with continuous drainage combined with energetic diuresis is a useful method of treatment in chronic cystitis. In such treatment hexamine, for reasons I have already discussed, need have no place. Salol and boracic acid may be given. In many cases the thick tenacious mucus or plugs of mucopus block the catheter, and in other cases the urethra and bladder are intolerant of the indwelling catheter. Suprapubic cystotomy combined with continuous irrigation with weak antiseptic solution is the most effective treatment that we possess in dealing with chronic cystitis. The cystotomy tube must be of large size, and a catheter is tied in the urethra. A Hamilton Irving box is used to drain away the fluid. irrigation may be continued for a week or a fortnight.

Let me repeat here the necessity for finding the chief focus of infection before resorting to cystotomy. It is of no use to drain and clear up the bladder if the renal pelvis is the chief seat of the infection, or if the nidus lies in the prostate and seminal vesicles, for in that case the cystitis will recur when the bladder closes.

3. Prostatectomy and seminal vesiculectomy.—The treatment of chronic prostatitis and seminal vesiculitis is related to chronic urinary infection. It includes massage of the prostate and vesicles with hydro-

even a negative Wassermann reaction, must not count if the clinical evidence of syphilis is strong. The present writer has had abundant confirmation of the soundness of these views.

#### SYPHILITIC EXOPHTHALMIC GOITRE.

Ernest Shullman,³ in an article in a symposium on syphilis, remarks on this condition both in hereditary and acquired syphilis. He reports a family of eleven children, seven of whom had, in addition to the evidence of syphilitic inheritance, such as locomotor ataxy, leucoplacia, etc., Basedow's syndrome in varying degrees of intensity in mature life. The Wassermann reaction was positive in each case. The author gives the results of seventeen recorded cases of Basedow's syndrome treated by mercury and iodides with more or less complete success.

### THE SIGNIFICANCE OF VENOUS THROMBOSIS IN THE COURSE OF HEART FAILURE.

David Greenberg,1 after discussing venous throm-bosis of septic and bacterial origin, refers especially to the so-called bland thrombi. Virchow and Aschoff explain these on mechanical lines, giving as the chief factors: (1) alterations in the composition of the blood; (2) alterations in the blood flow. with stagnation; (3) peculiarities in the vascular wall. These authors emphasize among other contributory factors the valves of the veins, tortuosities, varicosities. causing eddying of the blood with so-called sand-bar formation. Others assert that bacterial infection is the chief factor. The author points out that venous thrombosis not infrequently occurs as a result of heart failure which may be overlooked, because of the associated ædema. The site of such thromboses may be either in the vessels of the extremities or sinuses of the brain and perhaps in the deep veins of the thorax and

# Recent Work on Diseases of the Heart and Blood Vessels.

By CHARLES W. CHAPMAN, M.D., M.R.C.P.

Consulting Physician to the National Hospital for Diseases of the Heart; late Physician to the Farringdon Dispensary, E.C.

RHEUMATIC HEART DISEASE IN CHILDREN UNDER TWO YEARS OF AGE.

S. DENZER¹ reports three cases, the rheumatic nature of which he considers proved by the presence of Aschoff bodies (microscopical accumulation of large cells about the smaller blood vessels in the wall of the ventricle) and subcutaneous nodules.

SYPHILIS OF THE HEART AND BLOOD VESSELS.

Tasker Howard² in a communication shows the importance of cardiovascular syphilis from its frequency, and when untreated its high mortality. untreated it is usually progressive, while if properly treated the disease may often be controlled. Brooks found fatal circulatory failure in two-thirds of fifty consecutive autopsies in syphilitic subjects. Clinically, it is found that 30 to 60 per cent. of all cases of aortic regurgitation and practically all cases of aortic aneurysms are due to syphilis, while many cases of angina pectoris are attributable to the same cause. Although syphilitic cardiovascular affections are, as a rule, among the later manifestations of the disease, yet it may occur within a few months of the primary sore. The importance of prompt treatment in these cases is so great that a denial of infection by the patient, and

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time more efficient. On the other hand, with sedentary workers the opposite conditions obtain. The authors consider the auscultatory method superior to the palpatory, and find the latter method in young adults gives readings for systolic pressure 14 mm. below that registered by auscultatory method. For the diastolic pressure the best index to use is the end of the third phase of sound, working the change from a clear to a dull sound, audible on gradually releasing the pressure of the armlet. The changes which occur in the pressure and pulse rate on rising from the sitting posture are no index of physical fitness. Routine measurement in growing boys proved in several instances the means of diagnosing severe lesions, which would otherwise have been passed unnoticed.

#### MYOCARDIAL LESIONS IN DIPHTHERIA.

Warthin,⁶ after a résumé of the literature (1860–1924), records his studies of autopsy material from sixteen cases observed, grossly and microscopically. It was found that the essential lesion of the heart in diphtheria was a toxic hyaline degeneration or necrosis, associated frequently with fatty degenerative infiltration, and less frequently with cloudy swelling or simple necrosis. If the patient survived a sufficient length of time a reparative myocarditis accompanied by muscular regeneration followed the degenerative lesions. Either a complete regeneration, or fibrosis, could result. Both the conducting and contractile elements were damaged by diphtheria.

## CHANGES IN THE BLOOD OXYGEN FOLLOWING BLEEDING IN CARDIAC PATIENTS.

S. B. Grant ⁷ describes a study of the blood of seven acutely decompensated cardiac patients, who were bled as a therapeutic measure. This produced an improvement in the peripheral circulation, as shown by a decrease in the co-efficient of utilization of oxygen. When

abdomen. Prognosis is extremely bad.

THE HEART IN HYPERTENSION.

J. P. O'Hare and W. G. Walker contribute an article embodying the outcome of special studies on this subject. In a series of 100 cases, in which the average age was fifty-five, the blood pressure ranged from 152-76 to 290-110. In 28 per cent, a diagnosis of chronic myocarditis was made. Dyspnæa was the most frequent symptom. Paroxysmal nocturnal smothering was also noted; this is closely allied to angina pectoris in its response to nitrites. It was most common in high diastolic pressures. Cardiac pain is generally a dull ache at the apical region. Typical angina pectoris was present in only three cases; of substernal compression there were fourteen cases. Hypertrophy was found in 83 per cent.; left ventricular preponderance was shown in thirty out of fifty electrocardiograms; in some cases both sides were equally hypertrophied. The great vessels showed diffuse widening at the arch and in older cases there was a tendency to tortuosity. This increase in size of the great vessels may be indicated by percussion dullness in the second interspace. Fluoroscopy often showed sharp pulsation at the upper end of the ascending aorta. The most common murmur was a blowing systolic at the base, extending up the neck; when this is coarse, and signs of stenosis are absent, aortitis is indicated.

#### BLOOD PRESSURE IN EARLY LIFE.

Percy Stocks and Noel Karn report in detail their investigations on this subject. With many practitioners the importance of the diastolic pressure is not recognized. Diastolic pressure is largely a measure of the peripheral resistance of the arterial system to the passage of blood through it; this pressure being lowered by regular physical exercise through reduction of the peripheral resistance, the heart is rendered at the same

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pressure irrespective of the previous or simultaneous injection of insulin.

THE MYOCARDIUM IN NON-INFECTIOUS MYOCARDIAL FAILURE.

B. J. Clawson, Department of Pathology, University of Minnesota, 10 publishes a detailed study of the gross and microscopical study of the myocardium in 102 hearts. After discussing the various causes of myocardial failure, the author arrived at the following conclusions:

(1) There are no anatomical changes except coronary sclerosis and myocardial fibrosis; (2) coronary sclerosis of a serious degree was present in 22.5 per cent.;

(3) myocardial fibrosis was found in a marked or moderate degree in 20.5 per cent., and in a slight degree in 30 per cent.; (4) there is usually a close correspondence between the situation and extent of myocardial fibrosis and the distribution of the coronary sclerosis; (5) myocardial fibrosis is usually due to coronary disease, but occasionally rheumatic infections may give rise to a slight degree of fibrosis; (6) luetic myocarditis is rare [Warthin 16 is of a contrary opinion]; (7) myocardial failure is rarely due to anatomical changes in the myocardium; it may be explained as exhaustion of the cardiac muscle.

#### SOME CARDIAC EFFECTS OF ATROPIN.

R. D. Rudolph and F. M. R. Bulmer, Department of Therapeutics, Toronto, publish observations which were made chiefly with regular hearts, and it was noted that atropin has two distinct effects upon the heart muscle when this is regular. In small doses it merely slows it, probably by stimulation of the vagal centres. In large doses, of course, it hastens it by paralysing the vagal endings of the heart. It also tends to the removal of any existing heart-block. Medium doses have no effect either way. Individuals vary very much in their reaction to atropin. In most adults gr. 1/100 will

the arterial oxygen saturation was below normal, and the heart not so seriously damaged as to be unable to respond to treatment, bleeding was followed by an increase in the arterial oxygen saturation, indicating improved efficiency of the pulmonary circulation.

#### CORONARY ARTERIAL OCCLUSION.

Herman C. Gardiner⁸ relates detailed histories of thirteen cases, and summarizes the salient points: (1) Sudden severe anginoid pain, substernal or upper abdominal; (2) a pinched, ashen-grey face, with sensation of impending dissolution; (3) acute emphysema of the lungs with moist crackling sounds at the bases; (4) an easily compressed rapid thready pulse, which may present any form of arrhythmia; (5) sudden drop in systolic pressure following severe pain and early myocardial exhaustion; (6) cardiac impulse, if palpable, a diffuse feeble tap, and often a tic-tac or gallop rhythm; (7) a localized and evanescent pericardial rub appearing for a few hours or days after the outset of the agonizing pain; (8) transitory mild fever; (9) inversion of T-wave with arborization block; (10) the presence of a large tender liver together with signs of pulmonary infarction suggests thrombosis of the right coronary artery, while sudden onset of pulmonary ædema and sudden arterial plugging in the brain, viscera, or extremities, with characteristic electrocardiogram, is suggestive of thrombosis of the left coronary artery.

#### INSULIN AND THE BLOOD PRESSURE.

P. Klemperer and R. Strisower show that ten units of insulin produce a transient reduction of blood pressure of about 20 to 40 per cent. in cases of diabetes associated with hypertonia and increased blood pressure within two hours. In a person with normal blood pressure (also in diabetics) the reduction in pressure amounted to 5 to 11 per cent. If epinephrin solution is injected there results the typical increase in blood

#### DISEASES OF THE HEART

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merely slow the heart, while in a few cases a slight hastening sets in. Atropin in small doses stimulates the vagi, and hence may hasten the heart in auricular fibrillation. It would therefore be useless to use atropin as an adjuvant to digitalis.

#### PHYSIO-THERAPY IN VASCULAR DISEASE.

Parsons Smith 12 indicates the value of this method in the treatment of some forms of vascular disease. We all know of instances of faulty diagnosis under the mystic trio D.A.H. Not only was needless alarm created by such diagnoses, but wholesome activity was unnecessarily curtailed. The author refers to reflex causes of heart symptoms of gastric origin, such as irregular beating of the heart, stoppage, and palpitation, which as a rule occur in relation to meals and are aggravated by persistent flatulent distension. In addition, there is a tendency to nervous prostration, irritability, depression, and syncopal attacks. Careful dieting with rest in bed are necessary, to which daily lavage and abdominal massage may be added. Passive exercises, followed later by resisted movements, are beneficial. A bitter stomachic with pepsine will also help.

#### THE VEGETATIVE NERVOUS SYSTEM AND THE HEART.

Badcock,¹³ in cases of simple tachycardia, urges the importance of searching the abdomen and pelvis for sources of irritation exciting the sympathetic or vagal portion of the nervous system. These may be responsible for the seizures, though valvular or myocardial disease co-exist.

## PARALYSIS OF THE LEFT RECURRENT LARYNGEAL NERVE IN ASSOCIATION WITH MITRAL STENOSIS.

George E. Price 1 reports one of these rare cases, which were first described by Ortner in 1897. Of the various causes for this complication, that of pressure of the nerve between the dilated left auricle and pulmonary

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vein against the nerve and the aortic arch appears to be the most probable. In Price's case the voice regained its normal tone and volume after successful treatment of the heart by rest and digitalis.

### GRAVE CARDIAC SYMPTOMS DUE TO MULTIPLE DENTAL ABSCESSES.

W. R. Acland 14 reports the case of a colleague, aged 42, who had severe cardiac syncope, presumably due to influenzal toxemia. X-ray examination showed the presence of four dead teeth, three apical abscesses, and a certain amount of pyorrhæa alveolaris. The extraction of one tooth was followed by an improvement in the cardiac symptoms, while a "clean sweep" removed them entirely, the general health getting better at the same time. In a discussion which followed, some doubt was expressed regarding the connection between the carious teeth and the heart symptoms.

#### INTRACARDIAC INJECTION IN ACUTE HEART FAILURE.

Lenormant and his co-workers ¹⁵ report two cases, in one of which they succeeded in resuscitating a patient from heart failure during an abdominal operation by injecting adrenaline directly into the heart. The authors insist on the superiority of this treatment to the more formidable one of massage through the diaphragm.

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all the conditions which are included in the definition the postulates of subnormal temperature and an inactive skin hold force.

It is possible that the inactivity of the skin may, in certain cases, be an inborn characteristic forming one factor of a rheumatic diathesis. In most cases the inactivity is acquired, usually as the result of chilling or damp. It may be local, affecting, for instance, only the arm, neck, or hand, or it may be general; in the case of sufferers from "neuritis" the former condition is often found; in those who have widespread rheumatic symptoms the latter is usually the case. Investigation of the reaction of the sweat is so simple, and gives such useful information, that it is a pity that it has been so neglected.

In normal individuals the sweat induced by mild exertion or by over-clothing is neutral or faintly acid to litmus-paper; in all rheumatic patients it is, as has been said, strongly acid. The reaction differs in intensity in different parts of the body; the skin of the forehead is least, and that of the palms and soles most acid; it is found also that the sweat over an actively rheumatic joint or muscle is more strongly acid than that excreted at the same time over other and painless parts of the body. Under the influence of pyretic applications it is an easy matter to collect a test-tubeful of sweat for investigation; it will be found not only that this is acid, but that the acidity is due to free acid, which gives a positive reaction to Uffelmann's test for lactic acid.

Sarco-lactic acid is one of the products of the activity of muscle, particularly when there is any interference with its nerve supply, such as may follow injury or ill-health. By a very interesting series of experiments Wilde has shown that lactic acid is capable of forming an additive compound with animal tissues, that this compound is stable in the presence of alkalies, but can

## Pyretic Treatment of Rheumatic Affections.

By CHARLES SUNDELL, M.D., M.R.C.P.

Senior Physician to the Seamen's Hospital, Greenwich; Physician in Charge Children's Department, Prince of Wales's General Hospital, Tottenham.

HIS term is given by Wilde to a line of treatment that he has devised, and which depends upon the artificial production of a mild fever by simple physical means.

Observations upon which it is based include the following:—

- (1) The habitual temperature of the sufferer from chronic rheumatic troubles is subnormal; it rarely stands above 97.6 deg.
- (2) The skin of the rheumatic patient, except during transient febrile periods, is dry and inactive.
- (3) The sweat of the rheumatic patient is strongly acid.

Rheumatic affections, for the purposes of this article, are taken to include rheumatic fever, chronic rheumatism of children with or without nodules in the fibrous tissues, chorea of childhood, "fibrositis," sciatica, lumbago, brachial and cervical "neuritis," pleurodynia, and those chronic joint affections that are associated with stiffness and creaking on movement, spasm of muscles and hardening of ligaments. They do not include arthritis with definite destructive or hypertrophic changes in the bones and cartilages, or with the formation of synovial fringes. Neither do they include those forms of peri- and endo-arthritis which are typified by gonorrheal rheumatism. In

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all the conditions which are included in the definition the postulates of subnormal temperature and an inactive skin hold force.

It is possible that the inactivity of the skin may, in certain cases, be an inborn characteristic forming one factor of a rheumatic diathesis. In most cases the inactivity is acquired, usually as the result of chilling or damp. It may be local, affecting, for instance, only the arm, neck, or hand, or it may be general; in the case of sufferers from "neuritis" the former condition is often found; in those who have widespread rheumatic symptoms the latter is usually the case. Investigation of the reaction of the sweat is so simple, and gives such useful information, that it is a pity that it has been so neglected.

In normal individuals the sweat induced by mild exertion or by over-clothing is neutral or faintly acid to litmus-paper; in all rheumatic patients it is, as has been said, strongly acid. The reaction differs in intensity in different parts of the body; the skin of the forehead is least, and that of the palms and soles most acid; it is found also that the sweat over an actively rheumatic joint or muscle is more strongly acid than that excreted at the same time over other and painless parts of the body. Under the influence of pyretic applications it is an easy matter to collect a test-tubeful of sweat for investigation; it will be found not only that this is acid, but that the acidity is due to free acid, which gives a positive reaction to Uffelmann's test for lactic acid.

Sarco-lactic acid is one of the products of the activity of muscle, particularly when there is any interference with its nerve supply, such as may follow injury or ill-health. By a very interesting series of experiments Wilde has shown that lactic acid is capable of forming an additive compound with animal tissues, that this compound is stable in the presence of alkalies, but can

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be dissociated by the application of moderate heat.

Lactic acid formed as a product of muscular activity in the normal individual is rapidly got rid of in the sweat of a healthy skin. In the rheumatic patient with his dry skin this outlet is barred, the acid is retained in the tissues, particularly those which are least vascular, such as ligaments and tendons, and a condition which may be called "histolactia" develops; this abnormal state continues as long as the patient's temperature remains low. As soon as the temperature of the body rises, as it does on getting really warm in bed, after violent exercise, or at the onset of any infection, the condition of histolactia is disturbed, acid is set free, and pain, or even joint-swelling, appears.

Since the effect of fever upon this pain-producing poison is merely to set it free in the tissues, and since mere sweating is powerless to alter the harmful combination of acid with the tissues, it follows that treatment, to be effective, must combine two processes, first, a setting free of the retained acid, and then its removal through the activity of the sweat-glands. Fever alone, whether induced by infection or vaccines, is ineffectual, and sweating alone, whether induced by the salicylates or pilocarpine, is also ineffectual. The two processes must be combined.

#### METHODS EMPLOYED.

The most effectual is the pyretic couch; it has the drawback of inaccessibility for the bed-patient except in a hospital or nursing-home, but for those patients who can be brought to it, it offers the greatest hope of a speedy cure. It consists of a fenestrated couch under which steam at natural pressure is generated and through which it can percolate. The framework of the couch is covered by three thicknesses of blanket upon which the patient lies nude, over him a hemispherical metal cover is closed down, leaving his head

#### RHEUMATIC AFFECTIONS

exposed to the air at normal room temperature; round his neck are tucked towels which also close in the open upper end of the apparatus. Inside the cover are a series of electric lamps whose function is to equalize the temperature and afford a ready means for its regulation. The atmosphere inside the bath is warm and moist, but practically no steam is visible and hardly any escapes into the room. The patient's whole body is thus exposed to warm, moist surroundings: it is important that the atmosphere should not be hot or wet; heat above 105 deg. is liable to depress rather than excite the secretory action of the indolent skin, and wet steam is liable to cause burning. Soon after the commencement of the treatment the patient's temperature begins to rise; at the same time free sweating is induced. In twenty minutes the temperature, which was probably about 97.5 deg. before entering the apparatus, may rise to 101 deg. or 101.4 deg. It is inadvisable to allow it to exceed this, for uncomfortable sensations of palpitation, breathlessness, or faintness may occur. Free sweating of the forehead is usually a signal to reduce the heat.

In cases of long standing it is not unusual to find that the first two or three treatments do not succeed in provoking really copious sweating; when this delay in reaction to the treatment occurs the patients experience an increase in their pain, and possibly may suffer from some joint-swelling; they can be reassured with confidence that their apparent relapse will be of very brief duration, and that it is a good omen of ultimate success. It is very unusual for adequate sweating to be delayed after the fourth treatment, and as soon as it is established relief is prompt, progressive, and striking. The duration of the bath should be twenty minutes to half an hour. After the bath it is customary to give a tepid or cool needle-bath to produce contraction of the skin-vessels and diminish the risk of sub-

be dissociated by the application of moderate heat.

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sequent chill. The patient should rest for half an hour before going out into the open air. The number of treatments necessary to establish a cure varies between six and thirty or more, according to the severity and chronicity of the condition. Pain and stiffness disappear long before it is possible to pronounce the trouble cured; this assurance cannot be given till the sweat loses its acid reaction—a state of affairs which may require for its establishment several more seances than are necessary to remove the symptoms of which the patient complains.

An alternative to the pyretic couch is the hot-pack; this has the advantage of being feasible in most homes, but its effects are slower and less striking than those of the method described above. It calls for care and attention to detail if the best results are to be obtained. The writer is indebted to a nursing sister, who has had great experience and very happy results with hot-packing, for the following notes of the method of their administration.

Upon a firm mattress are spread in succession a thick blanket and a warmed mackintosh sheet; the patient is stripped, wrapped in a warm, dry blanket, laid upon the mackintosh, and then covered with another couple of blankets till the pack is ready. For the actual pack a fairly thick blanket is spread out, its sides rolled inwards till they meet in the centre; the double roll thus formed is loosely folded and placed on a large bath or pail, over it is then poured a large kettleful of boiling water. The hot, wet blanket is then quickly wrung out in a large wringer of linen, or canvas, by two people in the manner used for preparing fomenta-The two loose coverings are slipped off the patient, who is turned upon his side, one half of the wet blanket is passed underneath him; he is turned on to his other side, and the blanket pulled through under him, and the two sides folded closely round him, four

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#### RHEUMATIC AFFECTIONS

hot-water bottles are placed near him, and the free sides of the mackintosh and blanket on which he is lying are in turn wrapped round him; lastly, two or three more dry coverings are thrown over him and tucked closely round his neck. In these wrappings he lies for twenty to thirty minutes. His temperature rises two or three degrees and free sweating takes place. Should symptoms of distress occur he is released at once. After the pack he is quickly dried and wrapped in warm, dry blankets. If it can be arranged it is better to use a separate bed or couch for the pack, so that there may be no delay, with its risk of chill, in settling the patient down in his dry coverings. Sweating usually continues for at least half an hour after the termination of the pack.

In the writer's experience both forms of pyretic treatment have given extraordinarily good results; they have never failed to give great relief, and in many cases they have resulted in rapid and complete disappearance of symptoms.

Pyretic treatment has cured cases of chronic rheumatism which, after the failure of radiant heat, diathermy and immersion baths, have been classed as incurable, and it is worthy of extensive trial by the profession.

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## Psychotherapy: a Practical Means of Healing.

By T. A. HAWKESWORTH, M.B., M.R.C.S.

Physician to the Neurological Clinic, Ministry of Pensions, Southampton, etc.

HOUGH there are now welcome signs of this branch of medicine gaining ground in the estimation of the profession, it cannot be denied that it is still far from holding the position it deserves, and it is to be feared that too often the question of resort being had to it in a case where mental healing seems to be called for, is only mentioned to be dismissed by medical attendant and patient alike.

Enquiry into the possible reasons for such a state of affairs suggests that a considerable mass of confusion and prejudice, admittedly created in the past by the controversies and enthusiasms of the earlier writers on the subject, still exists, and that the potentialities as well as the limitations of psychotherapy as understood in 1925 might well be more widely known.

In common with other branches of medicine now well established in professional and public favour, psychotherapy once lay at the mercy of the theorists and enthusiasts. Theories were propounded and conclusions reached which are not now all thought convincing or, at any rate, to be of universal application. Claims were made for this or that method to the exclusion of others, which have not survived the test of time. Controversy rose high, the literature became more and more bulky, and a formidable nomenclature grew with it.

The tendency all along was to give the rein to theory, with but little clinical backing, cases only being quoted

that appeared to support the theory advanced. The practical everyday application of this study to methodically dealing with the conditions treated was left but little space in the greater number of works on the subject, and in some, indeed, was scarcely mentioned.

The memory of all this controversy and the confusion it created dies hard.

With the general public who have not usually had access to the strictly professional literature, a rather widespread prejudice against and mistrust of all forms of mental healing has grown up. Much prominence has been given to psychology since the war, and efforts have been made to popularize the study of the subject by the issue of cheap manuals, pamphlets, etc. And unfortunately but inevitably numbers of unqualified and not always mentally well-balanced persons of both sexes have joined in, and by gathering audiences and classes, and even by undertaking mental treatment, as they understand it, have helped to obscure the truth, and to bring rational mental healing into disrepute.

Some of the leaflets issued by these persons to their clients and supporters are truly deplorable, containing, as they do, uninstructed reasoning and advice which, if taken seriously, must produce most regrettable results in those to whom they are addressed.

Then again, psychological explanations for this or that are lightly referred to in everyday conversation as excuses for crime, ill-conduct, or any peculiarity, especially by those themselves unstable, who, having heard the subject spoken of, dimly realize what is to them a new point of view, and a surprising number of people who would be considered normal in all other respects have made a hobby of finding and stating psychological reasons for every conceivable human failing from infancy to old age.

The whole subject is ill-understood by the general

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public at present, and it must not be forgotten that it is frequently confused with the occult.

Thus it is perhaps not altogether surprising, though certainly most regrettable, that physician and patient are too often in agreement in refusing the aid of psychotherapy and indeed are unwilling to examine its claims.

My experience is that the patient is not only unwilling but actually tends to resent the suggestion that his case may be one in which such measures are necessary in order to get him well. He quite likely fancies that to admit this is tantamount to labelling himself a weak character or confessing to the existence of a definite mental twist.

A course of such treatment calls up in many a dread of yielding up their personality to another, or visions of lying helpless under deep hypnosis at the mercy of the operator or of being forced to submit to the tedium of psychoanalysis, with its disagreeable possibilities of unsuspected horrors being disinterred and dragged to light, or more often, perhaps, he is just deeply offended—for, of course, if his medical attendant can suggest such treatment, it can only mean that he thinks there is "nothing the matter but nerves."

A great deal of irresponsible nonsense has been written and talked about all this.

Until the general practitioner, on whom the whole continued study depends, more generally realizes that in psychotherapy as practised to-day there are methods at least well worthy of careful consideration giving good results in a number of cases that so frequently present themselves, and is prepared to vigorously take the question up with those patients who unreasonably refuse its help, but little progress will be made.

He should be ready to place the present position of our knowledge on the subject plainly before them, with reasons why benefit from such treatment may be expected, and to give some elementary explanations of

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what is known as to the influence of mental processes on the bodily health and well-being in all of us.

It would be shown, of course, at the same time, that it is not claimed as a panacea any more than other remedial measures known to the profession.

It can be asserted that if psychotherapy is only undertaken after careful consideration of the case, and the most suitable method is then chosen, a radical cure may be looked for in not a few, a very considerable improvement in many, whilst in others, the real basis of their trouble having been laid bare and by them acknowledged and accepted, the mental readjustment that will certainly follow will enable them to complete their own cure.

As the results of clinical work in this branch by present-day methods accumulate and become available for reference and comparison, a more reasoned view of the whole subject and its scope may be confidently looked for both from the profession and the public. The results of treatment so far have not in general been as systematically followed up as could be wished, and it may be hoped that further experience will lead to after-results being more carefully tabulated, and observation kept on the cases that have been treated for a sufficient period. As is well known, the human mind has always been intensely attracted by supposed magical or dramatic cures and is ready to attribute to the physician in whose hands these have apparently materialized some mystical or superhuman powers. The reputed cures in some of the earlier works referred to and some of those amongst the nerve shock cases occurring in the late war, which have been somewhat triumphantly written up, and echoes of which have from time to time found their way into the newspapers, have not always helped to strengthen the position of psychotherapy in professional opinion, whilst they have unfortunately created a quite false impression in the

public mind. The ground badly wants clearing of all the errors that have grown up.

Experience in the use of psychotherapeutic measures and in the method most likely to succeed in each particular case will, of course, always be an asset as in any other department of medicine, and a good general professional knowledge, it need hardly be added, is essential.

Apart from that, an unlimited stock of patience will certainly be called for, and the possession of a wide sympathy and some understanding of human weaknesses, difficulties and failures, will be helpful. Success indeed lies not so much with the method as with the personality of the physician.

The patient's own medical adviser will seldom find it possible to allot the necessary time to the consideration of such cases, and further, it must be admitted that most of them cannot be successfully dealt with at home. The patient is far more likely, faced as he may be after the preliminary investigation with a view of his condition, new and, maybe, distasteful to him, to get matters in their right perspective and to value them aright when away from the misdirected sympathy and adverse influences of unwisely inquisitive friends and relations, and from the surroundings amongst which his troubles have arisen and materialized.

With regard to Freud's theories of the unconscious, and the methods based on them, which have been the subject of such world-wide comment and criticism, Dr. Bedford Pierce, in "The Practitioner's Encyclopædia of Medicine and Surgery," admirably states the situation as follows: "There can be little doubt that it (psychoanalysis) helps to elucidate symptoms, and that he touches a great truth in showing that long-forgotten experiences influence conduct unconsciously, and that repressed desires and instincts are directly concerned in

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the production of the psychoneuroses. Our ground is less sure if we assume that patients are necessarily benefited by the revival of these repressed desires, and there is reason to fear that the enquiry into these topics may sometimes be injurious."

It is not now generally considered that the cases where the use of a complete Freudian analysis appears to be the only procedure likely to succeed, represent any considerable proportion of those that would be presented for investigation, and it may be assumed that in comparatively few of these would there be sufficient intelligence, or sufficient means to admit of such a protracted undertaking being carried out.

Recent work suggests grave doubts as to sex conflicts and repressions forming the inevitable basis of different forms of psychic disturbance, as insisted on by the Freudian school, and consequently it may be said that a mental analysis need not usually be so nauseating both to patient and doctor alike, as was formerly the case when that particular form of exploration was thought to be essential.

With regard to hypnotic suggestion, the routine practice of which was formerly so enthusiastically advocated, and the cures thereby obtained insisted on, a very considerably modified view of its value has now been reached. It may be said that to-day the attempt to induce a state of deep hypnosis would only be undertaken with a definite object, and that, that object attained, the process would not be repeated. For instance, in the effort to recover a lost memory deep hypnosis might well be used in certain cases, but is not now employed in association with treatment by suggestion as was formerly the routine method.

It is not within the scope of a short article to enter into detail as to the precise methods which have been found of value in dealing with the very diverse symptoms with which the physician may be faced. Each

case must be taken on its own merits, and a definite plan of attack, often requiring considerable ingenuity, resolved upon and carried out.

It may be said, however, that a very careful and detailed preliminary investigation of the history and symptoms, followed by an exhaustive examination of the physical condition of the patient, is essential to all. This must on no account be cut short, the battle being already half won when the confidence of the patient is gained and he has been encouraged to state his own case in the most complete detail, however wearisome. In this way only can his whole-hearted co-operation be secured, and possible mental reservations be swept away. The selection of the method to be adopted, whilst of course depending on the condition to be treated, will to a great extent be dictated by the patient's particular mentality, and in making a wise choice of such methods experience in the management of similar cases is naturally of value. showing the various symptoms grouped under neurasthenia, the hysterical cases with their nervous and psychic manifestations, the phobias, obsessions, and compulsions, etc., will each need to be met with appropriate measures, in the framing of which much resource is sure to be needed.

It has been already mentioned that psychotherapy should only be determined on after a careful consideration of the case it is proposed to deal with; one of the essential requirements being that the patient's mentality is such as to enable him to grasp the meaning of the investigation in which he is about to take part. Psychotherapy must not be attempted if this condition cannot be satisfied, or where the general intelligence and education is insufficient, or where habits and prejudices have become firmly rooted through age or long continuance, for it would be foredoomed to failure.

It must not be forgotten that quite a number of the

#### PSYCHOTHERAPY

conditions, psychic in origin, in which the aid of psychotherapy will be sought are really only the outcome of failure on the patient's part, for one reason or another, to adjust himself to or to live in harmony with his surroundings, work, everyday life, companions, and so on. They may or may not date from some physical or mental shock. In any case the patient has got, as it were, to find some plausible reason for his failure with which he may satisfy his own mind, and secure the sympathy rather than the contempt of those whose opinions matter to him. And he does so by unconscious yet purposeful processes by which, indeed, some remarkable results both bodily and mental are often produced. The fact that, in the process of cure, the patient has got to realize his own self-deception or cowardice, and that in facing the world anew he must first throw overboard the comfortable illness or disability that he had persuaded himself (still unconsciously) was the cause of his failure, will serve to show the absolute necessity for his intelligent co-operation in such an investigation, unpleasant as it will be to him, and in the subsequent curative measures that are adopted. There can hardly be anyone in general practice who is not called upon to deal more or less often with cases where a psychic origin is either certain, or at least very probably existent. Restless and introspective, morose or garrulous, they are certainly not, outwardly, amongst the most attractive or apparently urgent pathological problems that the busy practitioner has to face; they cannot usually state their case succinctly. All they know is there is something wrong about life for them. If left untreated many will either eventually drift into definitely certifiable states, or, becoming less and less able to adjust themselves to their difficulties, remain for life chronic invalids, an increasing care and burden to their friends and an intolerable nuisance to their doctor.

## Acute Nephritis in Children.

By R. S. ALLISON, M.D., M.R.C.P.

Assistant Physician, Ruthin Castle; late Medical Registrar, West London Hospital.

HE following observations are based on some cases of acute nephritis occurring in children under the care of Dr. Saunders and Dr. Burnford, at the West London Hospital during the past year. The cases, which number twelve, were not specially chosen, the only criteria for their selection being that they should be definitely acute and thoroughly investigated. In children the latter is a difficult matter and necessitates their admission to hospital, where they can be placed under close observation. In each case the condition of the urine and the efficiency of the kidneys was ascertained in the following manner, the work being carried out by Dr. Elworthy, pathologist, and Dr. Archer, bio-chemist, in the laboratories of the hospital.

- (1) A Specimen of Urine was obtained as aseptically as possible, the most convenient time for this being after a bath on admission. In view of the age of the patients it was not thought desirable to submit them to catheterization. This specimen was examined for albumin and blood and microscopically for easts, pus and pathogenic organisms.
- (2) The Urea Concentration Test.—The child received no breakfast on the day of the test and at 9 a.m. passed urine and was then given 15 grams of urea dissolved in 100 c.cm. of water flavoured with syrup of orange. The urine was collected at intervals of one

hour for three hours. Throughout the test the child remained in bed.

- (3) The Blood Urea.—1 c.cm. of blood was taken from a vein at the elbow into an oxalated tube with the aid of a hypodermic syringe. This procedure was carried out just prior to the urea concentration test.
  - (4) The Diastase Content of the Urine.—The urine passed by the child over a period of twenty-four hours was stored in a sterile receptacle and a specimen examined for diastase.

The cases were first seen in the out-patient department and as soon as a diagnosis was made they were admitted to hospital, where within three days they were investigated in the manner described above. Since discharge from hospital they have been carefully followed in the out-patient department, and a second investigation of each case has been carried out at periods ranging from five months to one year from the onset of the acute disease. The procedure will be to give a summary of the facts observed, dealing as far as possible with all sides of the cases.

#### THE FAMILY HISTORY.

The parents were closely interrogated and the family history on both the maternal and paternal sides traced back. In only two cases, however, was there a history of nephritis; in the former, three cousins on the maternal side having died from the disease, and in the latter, an uncle, also on the maternal side, had died at the age of thirty-four from nephritis. The other members of the family were examined in each case with negative results. Eason and Malcolm Smith provide evidence to show that nephritis has a greater tendency to run in families than is generally supposed. Hazel Gregory has described a family of four children all of which had acute nephritis, the mother and father being

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#### ACUTE NEPHRITIS

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Thus, one writer states that in a child under the age of ten with symptoms of acute nephritis one should look for a history of recent scarlet fever and evidence of desquamation. In the older text-books cold and exposure are cited as important causes in the nonscarlatinal cases. These are undoubtedly exciting contributory causes, but their importance has been over-estimated.

The opinion that the vast majority of cases are due to infection from diseased tonsils and adenoids is shared by the more recent writers on the subject. Eason and Smith in a series of four cases were able to isolate streptococci from the tonsils and teeth of all four cases and from the blood and urine of two. The organisms were of the non-hæmolytic variety and give rise to a mild form of tonsillitis with little general reaction on the part of the body. They note the significant fact that the streptococci isolated from the tonsils may be biologically identical with those isolated from the blood and urine. Pure cultures of streptococci isolated from the urine of patients were injected intravenously into healthy rabbits. These animals succumbed from acute nephritis. It is reasonable to suppose therefore, that in eight of the cases of this series the infection was derived from the tonsils. The resistance of the patients was lowered and the localized infection of the tonsils became a general septicæmia, and in the excretion of the organisms and their toxic products by the kidneys, a nephritis was set up.

#### ONSET AND SYMPTOMATOLOGY.

In all twelve cases the onset was insidious and spread over a period varying from three months to a fortnight. The average duration of symptoms before the child was presented for examination was one month.

The typical history seems to have been that the

healthy.

#### ETIOLOGICAL FACTORS.

Predisposing Factors.—Ten of the twolve cases had had no illnesses within the last two years. Previous to that they had suffered from the usual run of minor ailments, whooping cough, chicken pox, etc. These ten cases could then be definitely said to have had no illnesses such as scarlet fever to predispose them to their present attack. One of the remaining two cases had a definite history of scarlet fever followed by diphtheria just prior to the onset of the acute nephritis; the other case had been a weak rachitic child from early days and had suffered from recurring attacks of tonsillitis at intervals.

Foci of Infection.—At the time of the first examination, when all the cases were acutely ill, eight showed enlarged and in some cases very enlarged tonsils and adenoids. They were invariably in a condition of sub-acute inflammation, the crypts being very distinct, and on pressure a slight mucopurulent secretion exuded.

Of the remaining four cases, one had a mild catarrhal otitis media, one a bilateral suppurative otitis with discharge, and two showed on careful examination no focus of infection whatsoever.

The outstanding features of these cases, then, was that the majority showed enlarged and unhealthy tonsils and adenoids as the only possible source of infection.

In the past the tendency has been to regard cases of acute nephritis in children as arising from two main causes:—

(a) Searlet fever.

#### ACUTE NEPHRITIS

#### (b) Cold and exposure. The nephritis ab frigore.

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healthy.

#### ETIOLOGICAL FACTORS.

Predisposing Factors.—Ten of the twelve cases had had no illnesses within the last two years. Previous to that they had suffered from the usual run of minor ailments, whooping cough, chicken pox, etc. These ten cases could then be definitely said to have had no illnesses such as scarlet fever to predispose them to their present attack. One of the remaining two cases had a definite history of scarlet fever followed by diphtheria just prior to the onset of the acute nephritis; the other case had been a weak rachitic child from early days and had suffered from recurring attacks of tonsillitis at intervals.

Foci of Infection.—At the time of the first examination, when all the cases were acutely ill, eight showed enlarged and in some cases very enlarged tonsils and adenoids. They were invariably in a condition of sub-acute inflammation, the crypts being very distinct, and on pressure a slight mucopurulent secretion exuded.

Of the remaining four cases, one had a mild catarrhal otitis media, one a bilateral suppurative otitis with discharge, and two showed on careful examination no focus of infection whatsoever.

The outstanding features of these cases, then, was that the majority showed enlarged and unhealthy tonsils and adenoids as the only possible source of infection.

In the past the tendency has been to regard cases of acute nephritis in children as arising from two main causes:—

⁽a) Scarlet fever.

#### ACUTE NEPHRITIS

#### (b) Cold and exposure. The nephritis ab frigore.

Thus, one writer states that in a child under the age of ten with symptoms of acute nephritis one should look for a history of recent scarlet fever and evidence of desquamation. In the older text-books cold and exposure are cited as important causes in the nonscarlatinal cases. These are undoubtedly exciting contributory causes, but their importance has been over-estimated.

The opinion that the vast majority of cases are due to infection from diseased tonsils and adenoids is shared by the more recent writers on the subject. Eason and Smith in a series of four cases were able to isolate streptococci from the tonsils and teeth of all four cases and from the blood and urine of two. The organisms were of the non-hæmolytic variety and give rise to a mild form of tonsillitis with little general reaction on the part of the body. They note the significant fact that the streptococci isolated from the tonsils may be biologically identical with those isolated from the blood and urine. Pure cultures of streptococci isolated from the urine of patients were injected intravenously into healthy rabbits. These animals succumbed from acute nephritis. It is reasonable to suppose therefore, that in eight of the cases of this series the infection was derived from the tonsils. The resistance of the patients was lowered and the localized infection of the tonsils became a general septicæmia, and in the excretion of the organisms and their toxic products by the kidneys, a nephritis was set up.

#### ONSET AND SYMPTOMATOLOGY.

In all twelve cases the onset was insidious and spread over a period varying from three months to a fortnight. The average duration of symptoms before the child was presented for examination was one month.

The typical history seems to have been that the

child, previously healthy, loses its appetite, picks at its food, and has no energy for school or for play. Lassitude by day is pronounced and by night the child sleeps heavily, and is aroused in the morning with difficulty. Vague abdominal pain may be complained of together with vomiting at intervals. During the last week the urine will have been noticed to be dark and concentrated and in a few cases, frankly hæmorrhagic, and there has been some degree of puffiness under the eyes on wakening in the morning. The following symptoms were noted in this series of cases:—

- (1) Lassitude, anorexia, and headache in all twelve cases.
- (2) Pallor (facial) in six cases.
- (3) Puffiness due to ædema under the eyes in five cases.
- (4) Vague abdominal pains in three cases.
- (5) Earache in five cases.
- (6) Blood in urine in five cases.
- (7) Vomiting in four cases.
- (8) Epistaxis with joint pains and purpura in one case

#### CONDITION ON ADMISSION.

All the cases showed definite constitutional disturbance. In only one case was the temperature normal. The highest recorded was  $102 \cdot 4^{\circ}$  F., the average being  $99 \cdot 6^{\circ}$  F. They showed no inclination for food, resented being examined and lay curled up in bed, readily falling asleep. The cases roughly fell into three groups in descending order of severity, the constitutional disturbance varying accordingly.

Group A, six cases (Nos. 1, 3, 6, 8, 9, 12).—All showed well-marked cedema under the eyes, but in no other situation. The urine was bright red from hæmorrhages in all but in No. 9, in which it was heavy and smoky-coloured. Blood and albumin were present in large amounts. Microscopically there were few casts, and these mainly blood and epithelial. The sudden appearance of the hæmaturia was a remarkable feature. Thus, one case was examined on a Wednesday in

#### ACUTE NEPHRITIS

out-patients, showing the presence of much albumin with only a trace of blood in the urine combined with marked constitutional disturbance. The next day, Thursday, the urine was heavily charged with blood, being bright red in colour. In another the mother of the child had noticed blood in the urine a few days previously; on the day of examination the urine was a smoky colour. Two days later it was again bright red. These facts incline one to the view that the sudden massive hæmaturia is due to an infarction, arising in a manner analogous to that seen in some cases of subacute bacterial endocarditis.

Group B, four cases (Nos. 2, 4, 5, and 10).—These showed no ædema. The urine was dark and of the colour described as "smoky." Albumin was present in large amount and blood in moderate quantity. Microscopically there were large numbers of casts of the blood, epithelial and granular variety.

Group C, two cases (Nos. 7 and 11).—These showed no cedema and only mild constitutional disturbance. The urine was dark and concentrated. It contained albumin in moderate amount and only a trace of blood. Microscopically casts were numerous, epithelial and granular in type with a few red cells.

In no case was any marked degree of oliguria noticed. Examination of the centrifugalized deposit showed no pus or pathogenic organisms.

The functional tests were carried out within three days of admission. In giving the result of the urea concentration test the percentage of urea in the last or third hour specimen only is given, the concentration of urea in the other specimens being low and no true index of the power of excretion owing to the diuresis caused.

From a perusal of these somewhat anomalous results it will be seen that the blood urea was raised above the

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- (7) Vomiting in four cases.
- (8) Epistaxis with joint pains and purpura in one case

#### CONDITION ON ADMISSION.

All the cases showed definite constitutional disturbance. In only one case was the temperature normal. The highest recorded was 102.4° F., the average being 99.6° F. They showed no inclination for food, resented being examined and lay curled up in bed, readily falling asleep. The cases roughly fell into three groups in descending order of severity, the constitutional disturbance varying accordingly.

Group A, six cases (Nos. 1, 3, 6, 8, 9, 12).—All showed well-marked cedema under the eyes, but in no other situation. The urine was bright red from hæmorrhages in all but in No. 9, in which it was heavy and smoky-coloured. Blood and albumin were present in large amounts. Microscopically there were few casts, and these mainly blood and epithelial. The sudden appearance of the hæmaturia was a remarkable feature. Thus, one case was examined on a Wednesday in

#### ACUTE NEPHRITIS

hæmaturia disappeared more rapidly. A urine which was blood-red on admission would be smoky for the next two or three days and then barely give the guaiacum reaction. In no case did the massive hæmaturia persist for more than three days after admission. The passing of this symptom was almost as sudden as the onset. The daily urinary output was measured during the period in hospital but in none of the cases was any marked degree of oliguria noticed even in those cases which showed severe constitutional disturbance at the onset, or during the course of the illness when exacerbations occurred. Uræmia did not occur in any case, and this is in accord with the general view, that uræmia, as a complication of acute nephritis in children, is a rare occurrence.

The treatment prescribed for each case was the same. It consisted of absolute rest in bed until the urine had been albumin-free for at least four days. Moderate quantities of fluid, 40–50 oz. in the twenty-four hours, were allowed. For the first week rigid milk diet and then gradual addition of eggs, cereals, and fish. Throughout, salt was excluded. Some advise that the protein constituent of the diet should not exceed 2 grams per kilogram of bodyweight in the acute stage. This, taking into consideration the loss of albumin in the urine, should suffice. It is not desirable to give larger quantities of protein, so that the kidneys may be spared as much as possible.

During the acute stage a mixture containing 5 minims of tinct. hyoscyamus and 5 grains of potassium citrate was administered three times a day. Later, during convalescence, iron was given freely in the form of the saccharated carbonate spread on bread and butter, much appreciated by children, or as the familiar Parrish's Syrup.

The most important part of the treatment was the removal of the focus of infection, i.e., the tonsils and

normal (20-40 mgms. per 100 c.cm. blood) in four of the cases (Nos. I, 6, 9, 10). On the other hand the concentration of urea in the urine was below 2 per cent. in three cases (Nos. 3, 9, 10).

In chronic nephritis a raised blood urea is generally accompanied by a low urea concentration in the urine and is then due to deficient urea excretion. Two cases in this series are in contrast to the general rule:—

No. 6 with blood urea - - - 110 mgm.

Urea concentration in urine - - 2.4 per cent.

And No. 3 with blood urea - - 30 mgm.

Urea concentration in urine - - 1.6 per cent.

It would appear that there is some other factor than urea retention at work in acute nephritis to cause such a high blood urea.

					<u> </u>							
Case No	1	2	3	4	5	6	7	8	9	10	11	12
Blood urea in mgms. per100c.cm.	57	22	30	32	36	110	37	32	80	79	39	
Diastase in units -	5	10	5	10	5	33	10	10	5	5	10	
Urea conc. per cent. in third-hour specimen	3.0	2.1	1.6	3.3	2.6	2.4	3.2	2.7	1.2	1.4	2.9	
Clinical group case belonged to	A	В	A	В	В	A	. a	A	В	a	A	A

From the clinical standpoint there appeared to be no definite relationship between the severity of the symptoms, condition of the urine, and the biochemical findings. This can readily be judged from the table.

PROGRESS: TREATMENT AND IMMEDIATE RESULTS.

The average duration of stay in hospital for the twelve cases was one month. On an average the albuminuria disappeared within two weeks. The

#### ACUTE NEPHRITIS

infirmary they were both albumin-free and in good health.

Three cases, Nos. 3, 6, and 10, had relapses. These three had all very enlarged tonsils. Increased inflammation of these was associated with an increase of albuminuria and the reappearance of hæmaturia. They all promptly reacted to operation and like the foregoing cases showed no signs of disease of the kidneys within a month from the date of admission and to all intents and purposes were as well as if they had never had an attack of nephritis.

The remaining two cases, Nos. 7 and 11, were mild from the onset, showing albuminuria and slight pyrexia only. They presented no definite focus of infection. The functional tests gave results within normal limits, and they showed a persistent albuminuria small in amount after six weeks of rigorous dietetic treatment and rest. The immediate results in these two cases were judged to be unfavourable and the prognosis doubtful.

The blood urea of cases Nos. 1, 6, 9, and 10, which showed a raised figure on admission, were done again within one month and found to be within normal limits (20-40 mgm. per 100 c.cm.). For example, case No. 6, which, on admission, had the high figure of 110 mgm., fell within a week to 74 mgm., and within ten days to 34 mgm. The same was true of the urea concentration test. The three cases (Nos. 3, 9, and 10) which showed defective concentration on admission, were found within a month to concentrate well over 2 per cent.

#### SUBSEQUENT HISTORY.

Since discharge from hospital the patients have been kept under observation, attending the children's outpatients' department, under Dr. Saunders, at intervals of a month or so. The majority have now been under

adenoids. This was carried out after the acute stage of the disease had subsided, but in those cases in which the urine does not become albumin-free and in which there are relapses with exacerbations of all the symptoms, operation should not be delayed. One of the cases demonstrated this point very well (see temperature

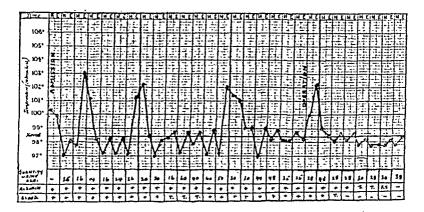


chart). The case (No. 10) had three definite exacerbations in three weeks during which the temperature rose to 102–103° F., and the quantity of blood and albumin in the urine was increased. The tonsils were very enlarged, inflamed and unhealthy. Operation was carried out and within a week the temperature, which had hitherto not been constant for three days consecutively, settled down to normal where it remained. Within three days the urine was free of blood, and within seven, of albumin.

To pass to the consideration of immediate results. In five of the cases, Nos. 1, 4, 8, 9, 12, the albuminuria-steadily decreased and finally disappeared, and this coincided with rapid improvement on the part of the patient. There was no tendency to remissions. Two cases, Nos. 2 and 5, developed intercurrent disease, diphtheria and measles, respectively. These were unavoidable mishaps and did not tend to aggravate the existing nephritis, as on their return from the

#### ACUTE NEPHRITIS

illness, showed markedly enlarged tonsils and adenoids which were in a state of chronic inflammation. From the results of their removal, it can hardly be doubted that these were the etiological factors.

- (2) Clinically half of the cases showed massive hæmaturia, severe constitutional disturbance, and slight ædema. "Smoky" and dark concentrated urine was associated with less severe constitutional symptoms. Oliguria was not a feature in any of the cases.
- (3) The functional tests for renal efficiency were of no prognostic or diagnostic value. The blood urea was raised in one-third of the cases, the rise being temporary, and returning to normal with subsidence of the acute symptoms.
- (4) The large majority of the cases were free from symptoms, and had apparently recovered within a month from the onset. No case of uramia or a fatal termination was met with.
- (5) At periods ranging from nine months to a year after the children were re-examined and found to be healthy and to show no trace of disease.

The thanks and acknowledgments of the writer are due to Drs. Saunders and Burnford for permission to investigate and publish these cases, and to Drs. Elworthy and Archer for the use of the laboratory results, and to all for useful suggestions and much help in the work.

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supervision for a period of nine months, some a year, dating from the onset of the acute illness.

There have been no remissions, and the two cases (Nos. 7 and 11) which, on discharge from hospital, still showed a slight albuminuria, were found to be albuminfree one month after. Within the past few weeks the cases have all been systematically examined.

The height, weight, and physical and mental condition was found to be within normal limits for their respective ages. From the following table they can all be seen to have completely recovered from the nephritis and to show no remote after-effects of the same.

												<u></u>
Case No	1	2	3	4	5	6	7	8	9	10	11	12
Urine albumin -	_	_		_	_		_	_			-	_
Blood urea in mgms	25		_		-	32	26	_	25	-		
Diastase units -		33	10	10	20	10	20	_	20			_
Urea conc. urine third hour per cent		3.2	3.2	2.8	3.1	3.4	3.3	2.5	3.2			
Blood press. systolic -	95	100	90	85	105	90	90	85	115	105		
Œdema -	_			_	_			_				
Symptoms				_								
Age (December, 1924)	41	6	41	5	5	6	8‡	107	11	111	41	111

#### SUMMARY AND CONCLUSION.

Twelve cases of acute nephritis in children, ranging in age from four to eleven years, were investigated in an attempt to discover the etiological factors, to study the clinical course of the disease and to ascertain the after results. The following conclusions have been drawn:—

⁽¹⁾ Two-thirds of the cases, at the time of onset of the acute 232

the regurgitant and effortless vomiting which is witnessed at this stage. Fæculent vomiting is a sure and certain sign that the far deadlier paralytic ileus has become superimposed on a primary organic obstruction. Other evidence pointing to this intimate relation between the paralysis and fæcal vomiting is furnished by the presence of such regurgitation in the cases of ileus consequent upon peritoneal infection in the absence of any organic obstruction.

It is for this reason I would urge that we dissociate our minds from the diagnostic value of such vomiting. Obstruction is self-evident even to the lay mind under these circumstances, whilst the hope of saving life demands more instant recognition.

The most important point to decide is whether an abdomen requires immediate operation or no, and in many cases seen at an early stage this is often the limit of success in diagnosis. The motto which must direct the surgery of these cases is: "Do as little as possible, and do that little quickly." This in practice means that the actual seat of obstruction must be located if possible in order that the most rapid operation for relief only may be performed through a single, small, well-placed incision. Accurate placing of the site of obstruction is frequently difficult, but this is no reason for not making the most careful effort to do so in every case. The routine use of the blind exploratory incision in the subumbilical region carries with it a heavy risk and it should gradually be eradicated from surgery by individual experience born of careful examinations.

#### PAIN.

This is our main sheet-anchor, in that its character should make us thoroughly alive to the possibilities of the presence of obstruction. It varies in amount and intensity according to the degree of interference with the blood supply and the extent of hypertrophy con-

# Acute Intestinal Obstruction: Some Points in Its Early Diagnosis.

By R. St. LEGER BROCKMAN, M.A., M.Ch., F.R.C.S.,

Assistant Surgeon, Royal Infirmary, Sheffield; late Hunterian

Professor, Royal College of Surgeons of England.

N no other surgical condition is there so urgent a call for improvement in our methods of recognition as in cases of acute intestinal obstruction. It is only by earlier diagnosis that we can hope to reduce the all-too-high mortality which at present attends our surgical endeavours.

The first essential step in the speeding up of our diagnosis is to relegate the sign of fæculent vomiting to a position similar to that which the appearance of generalized peritonitis holds in the diagnosis of acute appendicitis. It is of supreme importance to realize that the vomiting of this type only occurs in the last stage of the condition, and is a sign that the case has in all probability passed beyond the aids of surgery. Vomited material with a definite fæcal odour or appearance is undoubted evidence that a gradually threatened addition to the primary organic obstruction has suddenly become an accomplished fact.

The accumulation of the pent-up intestinal contents, together with a rapidly increasing growth of virulent organisms, causes a degenerative change in the musculature of the gut-wall, which, together with a stagnation of the blood supply, culminates in a paralysis and absolute loss of tone. When fæculent vomiting appears the pain has subsided. This condition also affects the sphincters, and so there is formed an open channel for

the regurgitant and effortless vomiting which is witnessed at this stage. Fæculent vomiting is a sure and certain sign that the far deadlier paralytic ileus has become superimposed on a primary organic obstruction. Other evidence pointing to this intimate relation between the paralysis and fæcal vomiting is furnished by the presence of such regurgitation in the cases of ileus consequent upon peritoneal infection in the absence of any organic obstruction.

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This is our main sheet-anchor, in that its character should make us thoroughly alive to the possibilities of the presence of obstruction. It varies in amount and intensity according to the degree of interference with the blood supply and the extent of hypertrophy con-

sequent upon a pre-existing chronic obstruction. It is sudden in onset, often like a bolt from the blue. It occurs in spasms, and at the onset is relieved by pressure. In obstruction a spasm can nearly always be induced by the surgeon's abdominal palpation however gentle. In colic this feature is conspicuously absent. Another characteristic of the pain in obstruction which is often of great value is what one may speak of as "the march of the spasm." As in colic, especially during the height of the contraction waves, the pain is mainly referred to the regions of the umbilicus and pubes; but in true obstruction a careful questioning will often elucidate the fact that each spasm can be felt to tail off in a region of the abdomen which is remarkably constant. This phenomenon, besides being most valuable in diagnosing obstruction, aids the localization of its seat in a very real manner.

#### SHOCK.

This is manifest at the onset and is almost co-existent with the pain. The patient looks pale and ill. The temperature is subnormal, but it is to the pulse rate that most attention should be paid. This shows a definite slowing. It is this particular sign which is so valuable, and it is not nearly as widely recognized as it should be that the initial stages of shock are marked by a definite drop in the pulse rate below the normal.

The degree of shock present at the onset helps to differentiate between small and large intestinal obstruction. It is more marked in the former case, especially if any strangulation is present.

#### VOMITING.

This often commences within a few minutes of the beginning of the condition. At this stage it is slight and, in consequence, is often neglected.

The presence of vomiting, however little, with acute

#### INTESTINAL OBSTRUCTION

spasmodic pain and early shock, should always be regarded as arising from acute obstruction until the contrary can be proved.

Profuse vomiting occurring within a short time points to obstruction high up in the small intestine. A sudden cessation of such vomiting should not be allowed to lull one into a sense of false security, as this feature is marked in obstruction of the deadliest type, that due to the impaction of a gallstone in the small intestine.

#### FLATUS.

The bowels are frequently moved and flatus is passed soon after the onset. This must not be allowed to mislead. The merest suspicion calls for the administration of two enemata with an interval of half an hour between.

#### AUSCULTATION.

The value of the stethoscope in the diagnosis of this condition is not sufficiently realized. The character of the sounds heard in obstructed intestine is sufficiently distinctive for a safe conclusion to be based on them. The high-pitched musical tinkle, which is heard when a piece of distended intestine is lifted out of the abdomen so that its contents can run down its length, is a sound that nothing else in the abdomen can imitate. the curious note of air and fluid moving in a tubular space. It is undoubted evidence of obstruction. If it is heard in a case in which pain has been absent from the start it points to a mesenteric thrombosis of the insidious type. By means of the stethoscope this peculiar note can be heard in the abdomen of a case of acute obstruction before the distension is marked or the vomiting has shown itself definitely progressive in type. If it is not apparent as a result of peristaltic movements, the action of the hand, as in dipping for a gastric succussion splash, will give rise to movements

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# Chronic Osteomyelitis of Left Ulna:

### Unusual Position of Brodie's Abscess.

BY LAMBERT ROGERS, F.R.C.S.
Resident Surgical Officer, Stockport Infirmary, Cheshire.

T will be generally agreed that the tibia is the commonest seat of circumscribed abscess in bone. Lecturing on this condition to students of St. George's Hospital in the year 1846, Sir Benjamin Brodie referred to eleven cases of his own: ten of these occurred in the tibia—five in the upper, five in the lower end; and one in the humerus. He referred also to another case in the tibia described during the previous year by Mr. Kirby, of Dublin. Brodie, who had reintroduced the practice of local operation for osteomyelitis when he trephined the tibia of a man of twenty-three, in August 1827, stated, at the lecture referred to, "An abscess may occur in the interior of any bone in the body, but according to my experience we meet with it more frequently in the tibia than in any other." This is now universal experience; cases of osteomyelitis in the ulna are therefore not frequently met with.

Such a case occurred, however, in a boy aged 17, who had fallen from his bicycle four months before admission. A swelling subsequently appeared about an inch and a half above the wrist, and later he reported it because of pain. The diagnosis of Brodie's abscess was confirmed by X-rays, and he was admitted to hospital on December 15, 1924, under Dr. J. T. Bailey, to whom I am indebted for permission to record the case. Under a general anæsthetic the bone was exposed and the abscess opened by removing part of the osseous shell, its purulent contents, including a sequestrum, evacuated, and the cavity packed with iodoform gauze. Convalescence has been satisfactory.

of the fluid and gas in distended gut, and so clinch a diagnosis which in other respects may be doubtful.

Auscultation will also play an important part in the localization of the obstruction. Just as the stoppage of fluid in a stricture of the esophagus can be located, so a careful examination with a stethoscope will, in the early stages, reveal a point of the abdominal cavity where fluid movements seem to stop at the end of each spasm.

#### OTHER MEANS OF LOCALIZATION.

The degree of distension and the shape of the abdomen are later phenomena, and do not call for consideration on the question of diagnosis in the primary stages.

Visible peristalsis is only seen in a chronic case culminating in an acute obstruction. It usually points to the large intestine. Old scars favour an obstruction by a band, especially if signs of old suppuration and drainage be present.

The mere routine examination of the hernial orifices for a swelling is not sufficient. A persistently tender spot over the femoral region in acute obstruction is found in a Richter's hernia. The non-appearance of a hernia which was previously always present is strong presumptive evidence of a reduction en masse with hidden strangulation.

#### CONCLUSION.

Careful examination with well-kept records of all observations will alone raise the diagnosis of acute intestinal obstruction from its present somewhat deplorable position.

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# An Unusual Case of Acute Intestinal Obstruction.

By DONOUGH W. MACNAMARA, M.B., B.CH. Medical Officer, Corofin Union and Dispensary District.

ECAUSE of the patient's great age, the long period over which she survived, and the comparative absence of the more distressing symptoms usually associated with acute obstruction, I think the following case may be worth recording:—

On November 5, 1924, I was called to see an old lady, aged eighty-three years, who gave the following history. Excluding the excision of a small growth from her left cheek seven years ago, which was done under local anæsthesia, she had never been a day ill in her life. She was the hard-working widow of a farmer. On October 28, 1924, after taking her usual dinner, she noticed what she described as a "rattling" from side to side in her abdomen, followed by a feeling of discomfort, and a slight attack of vomiting. She went to bed and had no further trouble that night. She got up next day, and for the few following days she felt fairly well, except that she noticed that her abdomen had become swollen, and that she was very constipated. She took a dose of castor oil, and later a dose of Epsom salts, but they failed to act.

On November 4 the vomiting returned, and was accompanied by colicy pains and by an increase in the abdominal distension. On November 5 she sent for me and I examined her. She looked healthy and felt quite well and lively. She had a temperature of 97.6 deg., a strong, regular pulse rate (85 to 90), and a slightly coated and moist tongue. The abdomen was greatly distended, and tympanitic all over on percussion. There was no sign of any fluid. Palpation revealed nothing in the nature of a growth, which was only to be expected from the high intra-abdominal tension. There was, however, slight tenderness over the region of the sigmoid colon. Digital examination of the rectum revealed nothing. Peristalsis was constant and obvious.

The patient refused to go to hospital or have any surgical intervention. She got numerous and varied enemas, some given high up the rectum, but they all proved abortive. I put her on ½ gr. doses of calomel every two hours until she had taken 4 grs. in all, but this, too, was without effect. I also tried the vegetable purgatives, but unavailingly. All this time the constipation was abso-

lute, not even flatus being passed from the first day of her illness.

The patient suffered a little from heartburn and abdominal discomfort, though she made but little complaint, and there had been no vomiting for four or five days. A mixture containing sodium bicarbonate, gentian, and tinct. cardamom co. gave her great ease from the pain and acidity. I decided that a comparatively peaceful and painless death was the most that could be hoped for, and I therefore began to give her \(\frac{1}{2}\) gr. doses of morphia every evening from November 11 on. On November 16 I was unable to visit her, and that night she had a severe attack of vomiting, which lasted about an hour. I saw her on the morning of November 17, when she had slight biliary vomiting and pain, both of which were relieved by morphia. On this day also her pulse began to drop beats and became irregular, and slight ædema made itself apparent around the ankles. On November 17 there was no perceptible change, but on the next day she had a very severe attack of vomiting and pain, which lasted about two hours and then passed off.

On November 19 her pulse was rapidly weakening, though she had no vomiting, and, for the first time since she became ill, she passed much flatus. She sank rapidly, however, and died painlessly late that night, on the twenty-third day of her illness.

### Practical Notes.

### Treatment of Diffuse Inflammation of the External Auditory Meatus.

G. de Parrel points out that inflammation of the external auditory meatus is the sequel of a persistent otorrhea, a furuncle, an eczematous dermatitis, or of a foreign body in the external meatus, and the treatment of the condition is not usually well understood. Too many practitioners prescribe drops of carbolic acid in glycerine or hydrogen peroxide, which merely irritate the inflammation. It is necessary first to shave the affected parts and paint a border of iodine around the lesion. The following powder is recommended for the dermatitis:—

The parts should be covered with a compress of gauze and a dressing, which is renewed every few days. In order to prevent crusting the following lotion should be applied on a mop of cottonwool:—

```
R Ichthyol - - - - - - - gm. 1 (grs. xv)

Resorcin - - - - - - gm. 0.75 (grs. x)

Balsam of Peru - - - - - gm. 5 (m lxxv)

Ol. Ricini - - - - gm. 60 (3ii)
```

Or the following ointment may be applied:—

```
      R
      Ichthyol - - - - - gm. 1·5 (grs. xx)

      Acid. salicyl. - - - - gm. 0·5 (grs. viii)

      Zinc oxid. - - - gm. 2 (grs. xxx)

      Vaseline - - - - gm. 15 (3ss)
```

When the discharge has dried up, and only a few little crusts remain, the parts may be cauterized with silver nitrate, in a 4 per cent. solution, every three days. If the eczematous lesions are accompanied by a rhinitis, with crusting, the following ointment is useful:—

Applications of warm air and of a light bath to the affected parts are also useful.—(Journal des Praticiens, January 10, 1925, p. 25.)

#### Treatment of Injuries of the Musculo-Spiral Nerve.

W. Russell MacAusland and A. R. MacAusland emphasize that the musculo-spiral nerve is frequently involved in injuries of the upper extremity, due largely to the close approximation of the nerve to the shaft of the humerus in its middle third. Slight injuries to the musculo-spiral nerve are frequently overlooked, especially as the paralytic symptoms may disappear rapidly after reduction of the fracture. These injuries demand early recognition and treatment, for such damage unrecognized often leads to a serious loss of func-A perfect result may be expected in cases of immediate suture of the nerve, but the chances of success are lessened after the elapse of a long period of paralysis. Simple freeing of the nerve is often the only procedure necessary to relieve the condition. In cases of complete division of the nerve, or in cases in which there is need to excise a portion of it because of a fibrous formation, nerve suture has been found the most satisfactory procedure for the approximation of the nerve ends. If the nerve suture does not relieve the condition, or if the case be not reparable by the various methods of manual stretching, neurotomy, or nerve grafting, then tendon transplantation gives satisfactory results.—(American Journal of the Medical Sciences, January, 1925, p. 1.)

#### Treatment of Membranous Croup.

M. Klotz suggests that too many tracheotomies are performed in the treatment of membranous croup. He states that he has never seen recovery in infants under one year in whom tracheotomy was performed, and but rarely under two years. The operation apparently affects the bronchi in these young infants. In older children, however, Dr. Klotz recommends that either intubation or tracheotomy should be carried out, even in those children in whom an apparent but transitory improvement has set in.—(Deutsche Medizinsche Wochenschrift, November 14, 1924, p. 1576.)

#### Treatment of Whooping-Cough.

Thorvald Madsen, of Copenhagen, in his Cutter lecture given at Harvard, deals with the important subject of the bacteriology, diagnosis, prevention, and treatment of whooping-cough. He points out that whooping-cough is beginning to occupy the front rank among those diseases which are attracting the attention of public health administrators; in Denmark there are more deaths from whooping-cough than from any of the other infectious diseases—typhoid fever, measles, scarlatina, diphtheria, cerebrospinal meningitis, and in England it is second only to measles. Since 1916 the Danish State Serum Institute has prepared a vaccine from the Bordet-Gengou bacillus, which is successfully employed both as a preventive and a therapeutic remedy for whooping-cough. The vaccine is injected intramuscularly or subcutaneously three times, with four days' interval, 0.5 c.cm. the first time, 0.7 c.cm. second, and 1 c.cm. the third time. In very young patients these doses are

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Ŗ	Bismuth salicyl.	-	-	-	- 7	am 6 (bica)
	Pulv. zine oxid.	-	•	-	- j	gm. 6 (3iss)
	Cocaine hydrochlor.	-	-	-		gm. $0.03$ (gr. $\frac{1}{3}$ )
	Pulv. tale	-	-	-	-	gm. 30 (3i)

The parts should be covered with a compress of gauze and a dressing, which is renewed every few days. In order to prevent crusting the following lotion should be applied on a mop of cottonwool:—

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#### PRACTICAL NOTES

The causes of anaphylaxis include the inhalation of various pollens, the feathers or hairs of various domestic animals, certain scents, the powders of certain drugs, such as emetine and novarsenobenzol; contact with various plants, metals, tissues; the ingestion of various foodstuffs, such as eggs, milk, fish, shellfish, fruits, chocolate, bread, or various drugs, such as quinine, aspirin, antipyrin; the injection of serums. In the treatment, therefore, of the condition, it is necessary, first, to eliminate possible causes, and these are found by carrying out a series of skin reactions. In addition to eliminating such causes, desensitization should be attempted: small, increasing doses of the causative substance, dissolved in a suitable solvant, are given hypodermically, every two, three, or four days, depending on the reaction; or sometimes a solution of the causative substance may be rubbed into the skin, when a dermatitis or other skin manifestation is the most obvious sign of the condition; or the causative substance may be given by the mouth, in increasing amounts, beginning with a very small dose; or, again, these methods of administration may be combined. Treatment by autohæmotherapy is sometimes successful, 10 c.cm. of blood being taken from a vein of the patient and injected again hypodermically. The subcutaneous or intravenous injection of peptone, or its administration by the rectum, sometimes brings about a cure; and merely to swallow a cachet or a tablet of peptone (0.50 gram, or 4 to 8 grains) three-quarters of an hour before a meal, may often suppress anaphylaxis.—(Clinique et Laboratoire, January 30, 1925, p. 13.)

#### The Dangers of Purging.

M. Brelet suggests that purging has long been too popular with physicians, probably reaching its height in the reign of King Louis XIV, when it was satirized by Molière. Burlureaux, in 1908, pronounced strongly against the use of purgatives, and received much support in discussions, but medical practitioners have still continued to purge their patients. Dr. Brelet points out that certain purgatives, such as colocinth and aloes, may have a toxic action, and that calomel has its dangers. The contra-indication of purgatives in appendicitis and typhoid fever is well known, but it is less well recognized that they should be very carefully employed in diseases of the nervous and the circulatory systems, in spasmodic constipation, and in diarrhœa; he pronounces against castor oil in infantile diarrhœa.—(Gazette des Hôpitaux, January 20, 1925, p. 87.)

#### Treatment of Acute Poliomyelitis.

F. Sabatucci comes to the conclusion, after a critical review of the various methods of treatment of acute poliomyelitis, that treatment by X-rays, if commenced sufficiently early, is the best. He suggests that it acts chiefly by absorbing the exudate and so bringing about decompression of the spinal cord. Of other methods of treatment Dr. Sabatucci considers that the best are diathermy and galvanization.—(Il Policlinico, November 1, 1924, p. 569.)

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## Reviews of Books.

Landmarks and Surface Markings of the Human Body. By L. BATHE RAWLING, M.B., B.C., F.R.C.S. Pp. viii and 97. Sixth edition. London: H. K. Lewis & Co., Ltd. 7s. 6d. net.

In this new edition the text has been revised, and the majority of the thirty-six illustrations are new and improved. The subject-matter is dealt with in five chapters, each of which is devoted to a region, namely, the head and neck, the upper and the lower extremity, the thorax, and the abdomen. The descriptions are brief and lucid, and simplified by the many excellent diagrams and illustrations. Much useful matter is given in a short appendix, such as the lengths of various passages and tubes, the weights of some organs, and the ossification and epiphysis of the bones of the upper and lower extremities. The book is one that can be recommended as a most useful one.

A Handbook of Midwifery for Midwives, Maternity Nurses, and Obstetric Dressers. By Comyns Berneley, M.D., F.R.C.P. Sixth edition. Pp. 578. London: Cassell & Co., Ltd. 8s. net.

THE popularity of this handbook is evidenced by the appearance of a sixth edition, in which the text has undergone revision, whilst the chapters on artificial feeding and premature children "have been re-cast in accordance with the most modern views." These chapters contain much information which will be of service to those for whom it is intended. Altogether the handbook is likely to maintain its popularity, for the fact that it is written in a manner easily understood is not the least of its merits.

Gonorrhæa in Women and Children. By J. Johnston Abraham, M.A., M.D., F.R.C.S. Pp. 136. London: Wm. Heinemann, 7s. 6d. net.

This little book is composed of nine lectures on gonorrhoa in women and children given by the author at the London Lock Hospital. A brief description only of the usual manifestations is given, as Mr. Abraham desired to pay attention particularly to treatment. His object is to point out to the general practitioner certain lines of treatment which can be adopted successfully without particular appliances and without any special skill; yet it is surprising to find that the lecturer migrates into the realms of major gynecology and urology. If a case had reached the stage that a ureteric catheterisation or a laboratory was necessary, one would consider that it was time that the patient was handed over to an expert. The application of caustics in chronic gonococcal endocervicitis is recommended. This is contrary to the general concensus of opinion: drainage is preferable to coagulation. Two chapters are devoted to metastatic gonorrhoa, and we can fully endorse the opinion that

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#### THE PRACTITIONER

"it is lowered resistance that counts in many cases of toxemia." The possessor of this little manual, whether he be student, practitioner, or specialist, will be repaid by its perusal.

British Red Cross Society Junior Health Manual No. 3. By BEATRICE AGAR. Pp. 100. London: Cassell & Co., Ltd. 1s. 6d. net.

This book forms one of a series of junior manuals produced by the British Red Cross Society. It deals with the elementary principles of health, and is divided into eight chapters, namely, health in general, personal health, the healthy house, food and health, the skin and the clothes, public health, a healthy baby, and a healthy mind. Questions are added at the end of each chapter for the use of lecturers, but they are equally useful for self-questioning. A good index and a syllabus of lectures are added. The book is what it professes to be—a simple elementary manual on health for juniors. The facts are well set-out, and in such a way as to be of value to the youngest junior, and easily understood by boy or girl.

Collected Papers on Mechano-Therapeutics. By EDGAR F. CYRIAX, M.D. Pp. 472. Illustrations 126. London: John Bale, Sons and Danielsson. 12s. net.

THE writer is of opinion that mechano-therapeutics are a muchneglected branch of medicine, and that the average medical man. both here and abroad, has but a poor conception of its actual nature and possibilities. We do not believe it to be a wilfully neglected branch. but we think the exact state of affairs is that the practitioner has no time to read more than he does at present and is compelled to regard many books as sufficing for the purposes of reference. No less than sixty-five articles which have appeared in the medical journals are reprinted here, and embody most of the author's communications on this special subject. The subjects treated and regarded as amenable to "mechanical" and gymnastic treatment are very diverse. We select a few by way of example: facial paralysis; mentally-deficient children; manual treatment of the abdominal sympathetic system; various conditions that may simulate the referred pains of visceral disease, and a consideration of these from the point of view of cause and effect; some hitherto unrecognized causes of spinal curvature; minor displacements of the vertebræ and ilia; backache and referred pain. The limits of space preclude us from going into detail, but sufficient has been said to indicate the wide field over which the author roams. Doubtless much more can be accomplished by mechano-therapeutics than is generally recognized; and it is only the keen specialist who realizes how much. For others the book must serve as one of reference, and its teachings should be carefully considered in the light of recent researches on neuro-physiology and neuro-pathology.

## Reviews of Books.

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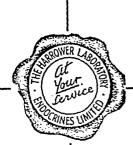
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No charge is made for the insertion of these notices: the necessary details should be sent before the 14th of each month to The Editor, THE PRACTITIONER, Howard Street, Strand, London, W.C. 2, to secure inclusion.

- ALLAN, G. G., M.B., Ch.B.Edin., appointed Certifying Factory Surgeon for the Ayton District, Co. Berwick.
- BAILEY, HAMILTON, F.R.C.S.Eng., appointed Assistant Surgeon, Liverpool Royal Infirmary.
- BLACKWOOD, W., M.B., Ch.B.Edin., appointed Certifying Factory Surgeon for the Camborne District, Co. Cornwall.
- BOWIE, E. ORMOND, L.A.H., D.P.H.
  Dub., appointed Medical Superintendent of
  Stretton House, Church Stretton,
  Shropshire.
- BROOME, F. C. S., M.B., B.S.Lond., appointed Certifying Factory Surgeon for the Ryde District, Isle of Wight.
- BROWN, C. Y., M.B., Ch.B., appointed House Surgeon to Manchester Royal Infirmary.
- CLEGG, S. F., M.B., Ch.B.Vict., appointed House Surgeon to Manchester Royal Infirmary.
- COHEN, J., L.R.C.P.Lond., M.R.C.S. Eng., appointed Medical Officer, Paddington Casual Wards, Metropolitan Asylums Board.
- DOUBLEDAY, F. N., L.R.C.P.Lond., M.R.C.S., L.D.S.Eng., appointed External Examiner in Dental subjects to the University of Bristol.
- DRINKWATER, S. W., M.B., Ch.B. Vict., appointed House Surgeon to Manchester Royal Infirmary.
- ECCLESTON, C., M.B., Ch.B. Vict., appointed House Physician to Manchester Royal Infirmary.
- FAIRBANK, Sir WILLIAM, K.C.V.O., O.B.E., appointed Honorary Surgeon Apothecary to the King's Household at Windsor Castle.
- HARRE, Miss G. E., M.B., B.S., D.P.H., appointed Medical Registrar to St. Mary's Hospital, W.2.
- HEYWORTH, A. H., M.B., Ch.B. Vict., appointed House Surgeon to Manchester Royal Infirmary.
- HUNTER, W. E., M.R.C.S., L.R.C.P., appointed House Surgeon, Specials Department, at Manchester Royal Infirmary.
- LACK, VICTOR J., F.R.C.S.Edin., appointed Lecturer in Midwifery and biseases of Women at the University of Birmingham.

LLEWELLYN-JONES, J. G., M.B., Ch.B. Liverp., appointed Workhouse Medical Officer and Public Vaccinator of the Hawarden Union, and Medical Officer of Health and Medical Officer, Isolation Hospital, Hawarden Rural District Council.

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- MCGRACKEN, W. J., M.B., B.Ch. Belf., appointed Certifying Factory Surgeon for the Haworth District, Co. York (West Riding).
- MacGILL, A. H., M.B., Ch.B. Yict., appointed House Surgeon to Manchester Royal Infirmary.
- MITCHELL, A. PHILP, M.Ch., M.D., F.R.C.S.Edin., appointed Assistant Surgeon to Leith Hospital.
- PARKER, C. S., M.R.C.S., L.R.C.P., appointed Certifying Factory Surgeon for the Coalville District, Co. Leicester.
- PARKER, R. W., M.B., Ch.B. Vict., appointed House Physician to Manchester Royal Infirmary.
- PHILLIPS, L. PENHALL, M.A., LL.B.Cantab., M.R.C.S., L.R.C.P., appointed Medical Superintendent to St. Mary's Hospital, W.2.
- POWELL, A. T. W., M.C., M.B., B.S. Lond., D.P.H., appointed Assistant County Medical Officer of Health for the County of West Suffolk.
- ROBERTS, W. M., M.B., Ch.B.Vict., appointed Junior Pathological Registrar to Manchester Royal Infirmary.
- ROSE, W. G., F.R.C.S.Eng., M.B., B.S.Lond., appointed Assistant Honorary Surgeon to Derbyshire Royal Infirmary.
- SAWDAY, A. E., M.B., B.S.Lond., M.R.C.S., L.R.C.P.Lond., appointed Honorary Surgeon, Derbyshire Hospital for Sick Children.
- SOMERFORD, A. R., M.B., Ch.B., Vict., appointed House Physician to Manchester Royal Infirmary.
- STURRIDGE, F.R., M.R.C.S., L.R.C.P. Lond., appointed a member of the Honorary Medical Staff of the Willesden General Hospital.
- TODD, ALAN H., M.S., F.R.C.S., appointed Honorary Orthopædic Surgeon to the Croydon General Hospital.
- WALKER, C. L., M.B., Ch.B. Yict., appointed House Physician to Manchester Royal Infirmary.
- WILSON, S. P., M.Sc., M.B., Ch.B. Vict., appointed House Physician to Manchester Royal Infirmary.



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No. 12

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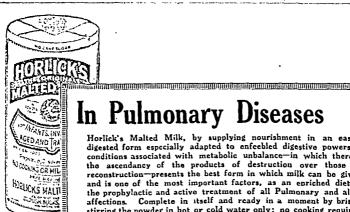
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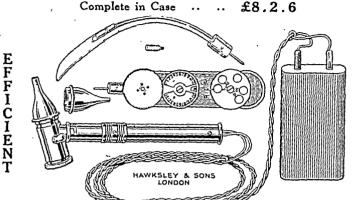
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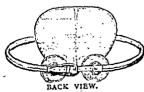
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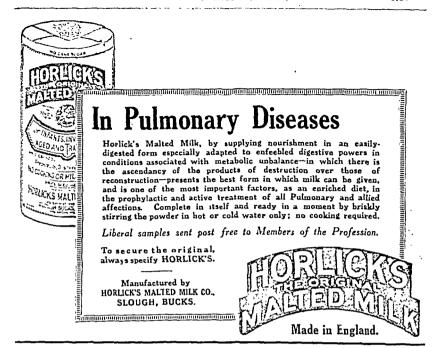
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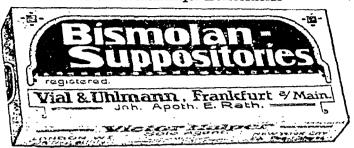
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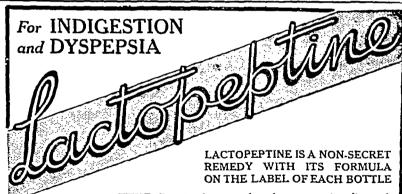
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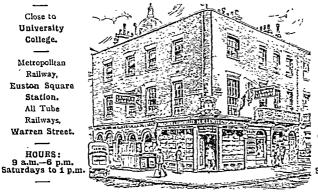
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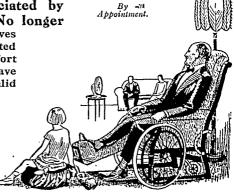
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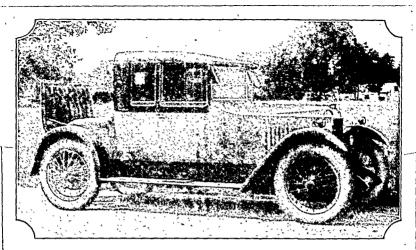
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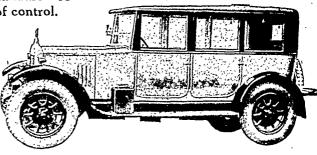
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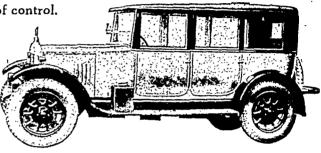
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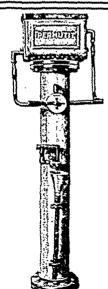
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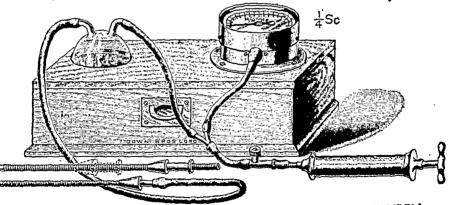
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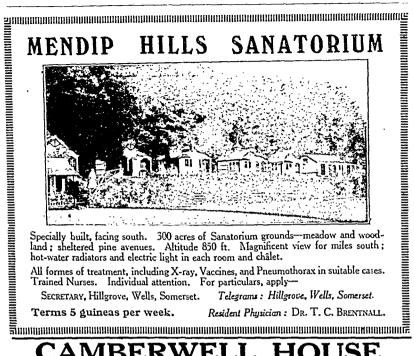


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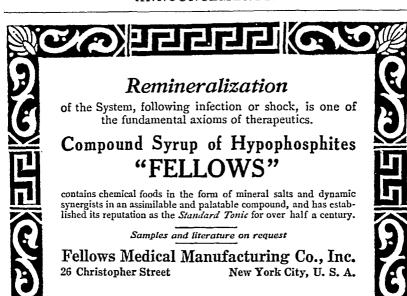
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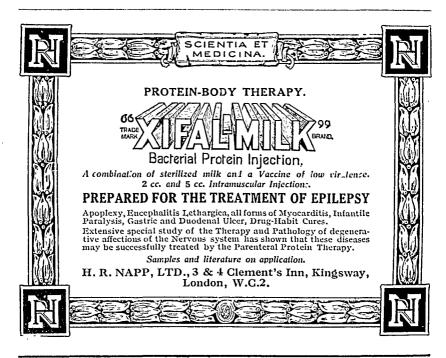
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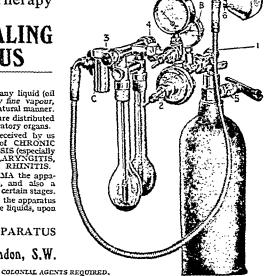
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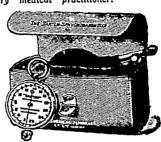
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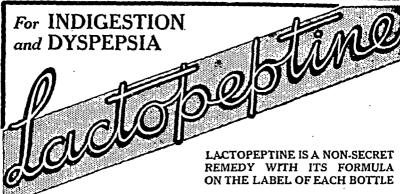
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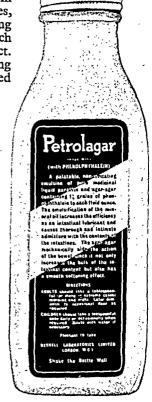
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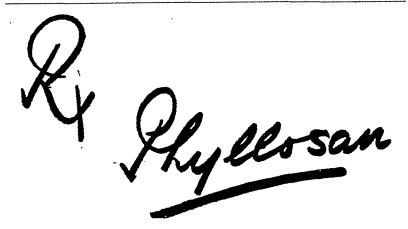
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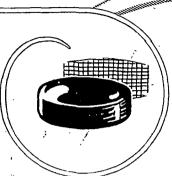
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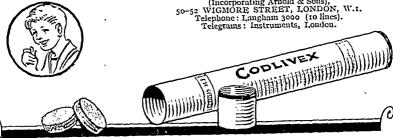
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Ptah-Socharis
Oviris

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The figures at each side represent Iris and Nephthys

A notable prescription for

# INSOMNIA

THE inability of the invalid, the convalescent, the dyspeptic and the aged to sleep well at night is a condition the physician is often required to combat. Many patients retire to bed without having eaten a sufficiency of food because they dread the possible digestive discomfort that may follow the taking of the usual evening meal.

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M 165



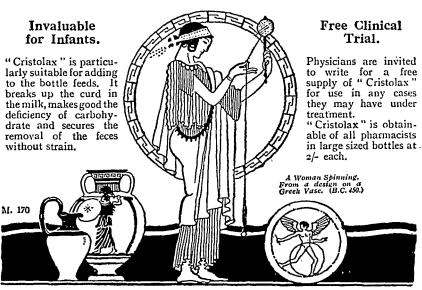
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Ptah-Socharis
Oxiris

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## A notable prescription for

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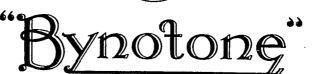
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# THE PRACTITIONER

# NOVEMBER

# The Treatment of Malaria in Britain.

By SIR RONALD ROSS, K.C.B., K.C.M.G., F.R.S., M.D., F.R.C.S., D.P.H.

Director-in-Chief, Ross Institute and Hospital for Tropical Diseases, Putney Heath; Honorary Consultant in Malaria to the Ministry of Pensions; late Professor of Tropical Medicine, University of Liverpool, etc.

HE busy practitioner can never spare time to study all the enormous medical literature of to-day, and is obliged to confine his attention to subjects with which he is most frequently called upon to deal; even specialists find it no easy matter to keep pace with recent advances in their own lines of work. We can therefore scarcely expect either of them to be complete masters of such a subject as malaria, the literature of which is contained in thousands of books and papers in many languages, while the actual cases are comparatively rare in this country. True, there was a large influx of such cases during and after the war. especially from Salonika, East Africa, and India: when I was at the War Office in 1918 we estimated that there had been at least 150,000 British cases of malaria on the Salonika front alone; a considerable proportion of

### THE PRACTITIONER

these, and of those from the other fronts, drifted into Britain before and after the Armistice. Nearly all of them, however, were promptly treated by the tropical diseases clinics which were established after the war by the Ministry of Pensions, under specially qualified medical consultants: so that general practitioners did not see as many cases as might have been expected -and with very few exceptions the cases have now It is true also that many of our medical recovered. practitioners saw much of malaria during the war on the Eastern fronts, and that some of them wrote valuable papers on the subject; but they constitute only a small proportion of the 30,000 medical men now in this Hence, to the great majority of general practitioners malaria is still an exotic subject—though any of them may be called upon at any moment to treat occasional cases who have returned from abroad. has therefore been suggested that I should write this article in THE PRACTITIONER to indicate briefly the points which, in my opinion, should be kept constantly in mind by every medical man who may have to deal with malaria patients in this country, or on board ships from the tropics. I will do my best to meet this suggestion, but must warn the reader that brevity can be obtained only at the cost of a certain amount of dogmatism, as well as elision.

Probably every medical man knows that malarial fever is caused by three species (or genera) of minute intracorpuscular parasites called *Plasmodia*—quartan fever by *P. malariæ*, tertian by *P. vivax*, and "malignant tertian," by *P. falciparum*. All these are inoculated by the bites of certain species of *Anopheles* mosquitoes. A few hundreds or thousands of the protospores of the parasites (sporozoids) are introduced into the blood-stream by the insect's proboscis, and then multiply simultaneously in the red corpuscles at the rate of about ten every two or three days. That is,

### MALARIA IN BRITAIN

an original invasion of a thousand protospores would reach the number of about a hundred million Plasmodia in about ten days with the tertian parasites, and fifteen days in the case of the quartan. This period is known as the incubation period: at the end of it the patient has the first typical malaria attack-rigor, fever, and sweating. The parasites will then number about a hundred or a thousand millions in his body, and, as a man of average weight contains about three million cubic millimetres of blood, there will be from about 33 to 333 parasites in each cubic millimetre, containing, say, five million red corpuscles. To search a whole cubic millimetre of blood under a high-power lens would require some hours, because there are only from three to five hundred corpuscles in each good field of the microscope; so that the pathologist seldom has time to examine more than a tenth of a cubic millimetre at a sitting. If he finds only one parasite during such a sitting, there will then be about thirty millions of parasites in the patient's whole blood-volume.

After the first attack of typical fever the number of parasites may continue to increase until it reaches many thousands of millions, or even some millions of millions in bad untreated cases, and all such cases would inevitably die except for some "germicidal" power of the blood, which must be rapidly developed and which ultimately limits the numbers of the invaders-or unless the numbers of the latter limit themselves by some process not yet fully recognized. The future progress of the case depends upon constant variations in the numbers of the Plasmodia; when the numbers are large the parasites are easily found and the patient tends to have attacks of fever; and when the numbers are small his health improves. Chills, fatigue, dissipation, and concurrent maladies seem to help the parasites to multiply. In rare cases the infection dies out of itself in a few weeks or months; but in most

### THE PRACTITIONER

it may continue for years unless adequate treatment is adopted, and may sometimes be associated with serious secondary symptoms—anæmia, splenomegaly, blackwater fever, etc., and, occasionally, death. In most malarious localities, parasites can almost always be found in the blood of the native children, but not of the adults, thus suggesting that at least partial immunity may be established after some years in the blood of patients without treatment; but we do not know whether the parasites die out completely in such cases, or still survive in small numbers; and the immunity seems to apply only to the local strain of the parasites.

Numerical estimates like these, however rough they may be, are always useful, because they help to give precision to our ideas. Practitioners are too apt to write "discharged cured" over their patient as soon as the pathologist reports that he cannot find parasites in a tenth of a cubic millimetre of that patient's blood; though, as I have said, the patient may still contain up to about thirty millions of the parasites, even if the pathologist has not overlooked any in the minute quantity of blood examined by him, and may suffer from a relapse shortly after discharge. This is especially true if the blood has been taken between the attacks of the periodical fever or after a relapse, when the asexual parasites may be comparatively few in number. Malaria is not like smallpox or measles in which one attack confers almost complete immunity, but is a long-continued and frequently-relapsing malady, at least in most cases of natural malaria, unless adequate treatment has been adopted. I think that this "enumerative" hypothesis gives the best explanation of the clinical picture; but individual patients are likely to differ greatly in natural resistance to the invasion; while previous diseases, such as syphilis, may perhaps exert an opposing influence.

### MALARIA IN BRITAIN

During the war some hundreds of persons were naturally infected by mosquitoes in England, especially in the south-eastern angle; but such indigenous cases are now dwindling, I am told, to only two or three a year; so that the practitioner in this country has to do almost always with imported cases, that is, with relapses which may still be occurring months or years after the original infection was contracted abroad. In such cases the diagnosis has usually been already made, often after adequate blood examinations; but even in them the medical man must beware lest the attack of fever which he witnesses is really due to some quite different inter-current malady, especially influenza, appendicitis, hepatic abscess, etc. He should not be satisfied with one negative blood-test only, but should take specimens on several occasions, especially when the fever is commencing. The malarial fever usually commences between 9 a.m. and 3 p.m., and, when it drops to normal, generally falls to 97° F., or even down to 96° F., or lower, while most other fevers tend to commence or rise in the afternoon, and to remain steadily above normal. The initial rigor is frequently well marked in the commonest species of malaria here, that due to P. vivax. The long-continued febrile periods due to P. falciparum are often confused with those of other fevers, but can usually be distinguished after a few days by the tertian periodicity of the chart. Splenic enlargement is generally absent or slight in this country, because it is restrained by quinine, which is taken more or less by most European patients. doubtful cases quinine itself often gives us "diagnosis by cure," since it is practically useless against other fevers than malaria, but specific in the latter. Any large degree of anæmia is rare in our returned cases, except among exhausted, neglected, or badly treated ones. Entozoa are common in persons from the tropics, and in my experience hook-worms often retard the

# THE PRACTITIONER

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benefits of quinine—so that it is advisable to send the fæces for examination, as well as the blood. A short "trial-course" of quinine is frequently beneficial in all kinds of cases from the tropics, even in surgical cases, because malaria is far from a rare complication in these.

Regarding treatment a very large number of special investigations have now been carried out, some of them most elaborate and praiseworthy. observers have tried various new drugs, especially new arsenical preparations, and though some of these proved to be beneficial, none was shown to be better than quinine, if as good-at least in my opinion based on the figures given in the records which I have read. Many very laborious investigations (some of which were commenced shortly after the parasites of malaria were discovered by Laveran in 1880) have attempted to find the best alkaloids of cinchona bark and the most appropriate doses, times of administration, and so on. Apart from numerous monographs by private workers in various countries, the War Office published, in its "Observations on Malaria by Medical Officers of the Army and Others" (Stationery Office, 1919, edited by me, page 323), the results of no fewer than 47 different lines of treatment tried on 2,460 cases of malaria, mostly from Salonika, by fifteen capable medical officers. Another series of excellent and sometimes more detailed studies were carried out simultaneously by seven investigators of the Liverpool School of Tropical Medicine, and published in its Annals of Tropical Medicine and Parasitology in 31 articles, from 1917 to 1921.

My own summary of the results is as follows: (1) Almost any oral doses of the sulphate, bichloride, or bihydrochloride of quinine from 10 grains or even less a day, to 100 grains or even more a day, will suffice in these cases of relapse to reduce the fever within three days, and to make the asexual parasites fall below the

#### MALARIA IN BRITAIN

practical finding-point in five days; and the size of the dose above the 10 grains makes little difference in these clearing-times. (2) No known medication, even if continued daily for considerable periods up to two months or more, will absolutely preclude relapses, even while the drug is being taken, in a percentage of cases up to, say, 25 per cent. or more—though the relapses usually become progressively milder.

For these and other reasons I infer that no dose of quinine can of itself destroy more than, say, 20 per cent. of the asexual parasites actually present in the patient on the day when the dose is given. If next day's dose kills the same proportion of the remaining parasites, and so on, day by day, then, by a simple logarithmic calculation (which it is impossible to give here), I infer that this dosage must be continued daily for about three months before the infection is extirpated entirely. Few medical men recognize how slow the process of destruction may be. The 100 per cent. "parasiticide" is not known for any infection, and is probably unattainable (without killing the patient as well). Even if a drug could be found, such that a single dose of it would kill, directly or indirectly, 90 per cent. of the parasites present (malaria or other), then one dose would reduce a hundred million parasites to ten millions, two doses to one million; and eight successive doses, even of such a powerful remedy, would be required before the invaders could be reduced to one solitary individual. No malaria-cure even of this strength is known. Even a 50 per cent. parasiticide would only reduce a hundred millions to fifty millions, and a second dose to twenty-five millions, and so on: and twenty-seven successive doses of it would be required to reduce the hundred millions to a figure less than unity. Of course several secondary factors will come into play at the same time, especially the host's personal resistance (a) to the parasites and (b) to the drug, whatever it is; and these are likely to vary from

person to person and from time to time, and to affect the final result, perhaps very largely. For further details see my article on "The Principle of Repeated Medication for Curing Infections," British Medical Journal, July 2, 1921. We do not know why or how quinine-taking reduces the Plasmodia; but that it does so is perhaps the best-established fact in therapeutics—though, as I have said, it is scarcely better than a 20 per cent. parasiticide. Other considerations, such as the simultaneous proliferation of the parasites, would require fuller treatment than this rough sketch aims at.

The general practitioner's duty is not to seek the 100 per cent. parasiticide at the risk of his patient's health, but, if possible, to destroy all the Plasmodia in his patient without relapses. For this purpose I recommend, and use for my own private patients, the following treatment for men: ten grains of quinine sulphate, hydrochloride, or bihydrochloride, preferably in solution, once a day just before breakfast every morning for three months. The patient becomes accustomed to this after a few doses, and the following meal takes the taste of the medicine out of his mouth. Complaints of indigestion or even vomiting are always made by a few persons, and to them the same doses in tablet or capsule may be exhibited. I cured my own malaria in 1897 with this prescription taken for four months, without any relapse. If relapses do occur, it is generally within the first three weeks; and they should be treated with an additional similar dose before dinner on days when the temperature is above normal, and for three or more days longer, after which the single daily dose is resumed. Smaller doses, of course, for women and children. Bowels to be kept regular, preferably with a dose of paraffin at bedtime, and a glycerine suppository every morning on waking, if necessary. A large number of modifications are used by various practitioners, such as 30 grains twice a week, or on

#### MALARIA IN BRITAIN

Saturdays and Sundays, or the doses at bedtime, or half-doses twice a day, and so on; but I find that patients become more quickly accustomed to the single morning dose, and are apt to forget or elude the bi-weekly dose when the day comes round. The great thing is to continue the treatment steadily. month should be insisted on; and if the patient rebels after that, he should be warned that relapses are likely to occur as long as a single parasite exists in his blood. The ideal object is, I repeat, to destroy the whole brood. Intra-muscular injections of 15 grains may be employed at first for obstinate, refractory, dyspeptic, or serious cases, but they have no advantage for parasiticidal purposes over the oral doses, and sometimes cause local mischief. Intravenous injections have perhaps a little higher parasiticidal index than the other routes; but three out of ten cases relapsed after 10 injections on 10 consecutive days each ("Observations on Malaria," B 13, page 332), and they are seldom used except for very serious or sudden cases. Rest in bed, iron, arsenic, and alcohol may be given when indicated, and morphia for severe rigors, and diaphoretics at the height of the fever. In cases with a history of blackwater fever, quinine must be commenced very cautiously, and it is best to consult a specialist for them and for cases complicated with dysentery and possible hepatic abscess.

The actual length of the daily 10-grain course required to exterminate the parasites completely should depend (a) upon the number of asexual parasites present at the commencement of the treatment, and (b) upon the patient's natural resistance to the infection. We have no accurate means for determining the latter, and I therefore suggest the three-months' course on empirical grounds. Many people recommend much shorter courses, but this probably means a greater risk of relapse after the end of the course; and if a relapse

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Saturdays and Sundays, or the doses at bedtime, or half-doses twice a day, and so on; but I find that patients become more quickly accustomed to the single morning dose, and are apt to forget or elude the bi-weekly dose when the day comes round. The great thing is to continue the treatment steadily. One month should be insisted on; and if the patient rebels after that, he should be warned that relapses are likely to occur as long as a single parasite exists in his blood. The ideal object is, I repeat, to destroy the whole brood. Intra-muscular injections of 15 grains may be employed at first for obstinate, refractory, dyspeptic, or serious cases, but they have no advantage for parasiticidal purposes over the oral doses, and sometimes cause local mischief. Intravenous injections have perhaps a little higher parasiticidal index than the other routes; but three out of ten cases relapsed after 10 injections on 10 consecutive days each ("Observations on Malaria," B 13, page 332), and they are seldom used except for very serious or sudden cases. Rest in bed, iron, arsenic, and alcohol may be given when indicated, and morphia for severe rigors, and diaphoretics at the height of the fever. In cases with a history of blackwater fever, quinine must be commenced very cautiously, and it is best to consult a specialist for them and for cases complicated with dysentery and possible hepatic abscess.

The actual length of the daily 10-grain course required to exterminate the parasites completely should depend (a) upon the number of asexual parasites present at the commencement of the treatment, and (b) upon the patient's natural resistance to the infection. We have no accurate means for determining the latter, and I therefore suggest the three-months' course on empirical grounds. Many people recommend much shorter courses, but this probably means a greater risk of relapse after the end of the course; and if a relapse

person to person and from time to time, and to affect the final result, perhaps very largely. For further details see my article on "The Principle of Repeated Medication for Curing Infections," British Medical Journal, July 2, 1921. We do not know why or how quinine-taking reduces the Plasmodia; but that it does so is perhaps the best-established fact in therapeutics—though, as I have said, it is scarcely better than a 20 per cent. parasiticide. Other considerations, such as the simultaneous proliferation of the parasites, would require fuller treatment than this rough sketch aims at.

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spirochætes are available also for defence against the new invaders, the Plasmodia. There may also be another reason why the blood-inoculations (a) are so easily cured, namely, that they are derived generally from old-standing infections of the donor, in whom possibly the asexual invasion is already tending to become exhausted and to die out, and that the mere transference of these enfeebled generations to another host cannot prolong their vitality. It is a common biological law that the asexual proliferation of any cells (such as those of which our bodies are built) has a finite limit always resulting ultimately in their physiological death; and it may be argued that the blood-inoculations (a) are so easily cured because they consist of generations already aged in the original patient. possibly both explanations may be valid, but the differences between these artificial infections and the natural ones are so marked that I need not pursue the subject further in this article. To obtain really comparable results, artificial infections would have to be produced in healthy persons on a large scale.

does occur the whole course must be taken over again. Other factors may also be concerned, and further investigation is required.

The most convincing trial of the daily 10-grain dosage continued for three months was made under Colonel J. Dalrymple, C.M.G., R.A.M.C., in 1918, when no fewer than twenty-two sickly battalions of infantry were brought from Salonika to France and were given the course daily on parade under strict discipline for most of that period. On arrival in France, the men were in extremely bad condition (I inspected them), and it was estimated that from 75 per cent. to 85 per cent. of them were infected with malaria. Yet after the course nearly the whole of these two divisions were put into the firing line and were reported to be "the best-looking troops in France at the time" ("Observations on Malaria," mentioned above, page 132).

Much admirable work has recently been done on the suggestion of Wagner-Jauregg in 1920, to treat the highly fatal general paralysis due to Spirochæta pallida of syphilis by means of a possible counter-parasitism with living malaria parasites. The latter are introduced into the patient either (a) in blood from a malariainfected donor, or (b) by infected Anopheles mosquitoes. From the reports I judge that the infections resulting from both methods, though sometimes showing severe attacks of fever, differ extraordinarily from natural mosquito-infections in the comparative rarity and mildness of the relapses and the small amounts of quinine required to control the attacks, and indeed, the whole infection. Perhaps we may explain this on the tentative supposition that if the Plasmodia are inimical to the spirochætes, the spirochætes are equally inimical to the Plasmodia, so that the two invading armies tend to destroy each other; or on the supposition that the antibodies of the host already contending against the

When this is indicated, the operation should be done within a short space of time after the injury, and then only when perfect asepsis can be obtained. In any case the surgeon's immediate action is demanded, and the first essential is to steady the limb, and temporarily fix the broken bone or bones, so that no further movement of them is permitted; by so doing hæmorrhage, further laceration of soft structures, pain and shock, will be diminished.

In the case of the upper extremity, bandaging the arm to the side may perhaps be sufficient, but in the case of the lower extremity some form of splint is required, and there are two splints which do efficiently meet the case in all fractures of both upper and lower limbs. These two splints were so well tested and proved in the great war, that I cannot conceive any more critical trials to which an apparatus could be subjected.

#### FIRST-AID TREATMENT OF THE ARM.

Every fracture above the lower third of the forearm can be efficiently treated by the application of the "swivel arm Thomas splint." This instrument differs from "Thomas's knee splint" only in that the ring is round and made to swivel at the points of attachment to the side bars, instead of being oval and fixed obliquely to the bars. The application of the splint is so very simple. A temporary extension is taken by means of a double hitch of bandage placed over the well-padded wrist. The two ends of the bandage are tied to the end of the splint, with a pull sufficient to immobilize the fracture. The counter extension is taken from the anterior and posterior axillary folds when the arm is at the side, but from the side wall of the chest in the region of the armpit when the arm is abducted. This apparatus allows the arm to be brought in to the side of the body without increasing the

# The Initial Treatment of a Fractured Limb.

BY MEURICE SINCLAIR, C.M.G., M.B., B.CH.

Surgical Specialist, Ministry of Pensions; late Major R.A.M.C. and Officer in Charge, Special Fracture Wards, 8 Stationary Hospital, Wimereux, B.E.F., 1915-1918; Specialist in Orthopædic Surgery to the Army.

HEN a medical man is called upon to attend a case of fracture of a limb, the occasion is generally that of an accident on the hunting field, a motor smash on a country high road, or, possibly, an ordinary casualty on the streets or in a factory of a city. In the latter two instances one is more conveniently placed, as the personnel and material for treatment are probably more ready to hand, whereas in the former urgencies this is generally not so. But, in all cases, the treatment should commence from the time that the injured person is first seen by the surgeon or first-aid worker, and should be continuous and consecutive until cure is effected.

The surgeon has to decide at once whether he will take charge of the case himself, and so must frame his rules of procedure in accordance with his own experience of success with manipulation or other applicable methods. Even with the help of modern fracture equipment and the X-ray screen, a large and varied experience of manipulative treatment of deformities does not necessarily ensure that this form of treatment will be unfailingly successful in producing perfect reposition; it is therefore necessary in a percentage of cases to have recourse to such expedients as mechanical pulls, and when these fail, then to attack the seat of fracture by direct operation, with plating, wiring, bolting, bone grafting, etc.

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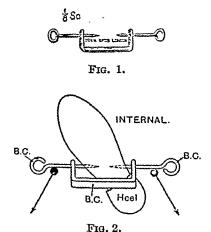
extension, and so facilitates the transport of the case. A circular bandage is applied enclosing the arm and side bars from the hand up to the ring of the splint, in order to complete the immobilization of the fracture. The splint is equally suitable both in the initial and subsequent treatment of any fracture of the arm from the shoulder joint downwards.

Just as the splint above described may be used for all fractures of the arm above the wrist, so, in the leg, the first-aid treatment of all fractures above the ankle joint can be efficiently carried out by the application of the Thomas knee splint, which is by far the finest piece of apparatus in our fracture equipment. It is applied in the following way. Maintaining manual extension on the ankle all the time, the leg is threaded through the ring of the splint without removing the trousers. If there is a selection of splints with different-sized rings to hand, then the transverse circumferential measurement of the thigh over the trousers should be made at the gluteal fold. To this figure add 1 in. to allow for the obliquity of the ring, 1 in. for clothing, and 2 in. for possible subsequent swelling, and this should be the inside circumferential measurement of the padded ring. Thereby all accessory padding which would be necessary for an unduly large ring will be obviated. The ring is pushed up gradually and firmly against the tuber ischii and kept there by the operator, who holds the distal end of the splint against his own thigh, at the same time supporting the patient's leg posteriorly at the site of fracture with his left hand and maintaining the extension on the ankle with his right hand, which is held underneath the inner side bar.

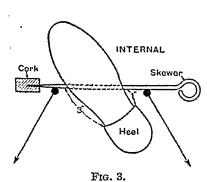
An assistant takes a 6 in. roller bandage, ties the end to the outer side bar near the ring, and passes it behind the thigh from side to side, first over the inner bar and then back over the outer one, and so on until the whole

#### INITIAL FRACTURE TREATMENT

of the posterior aspect of the limb is supported; the bandage is then tied to one or other of the side bars.



Sections through side bars of Thomas's Splint. The Boot Clamp, obliquely fixed to boot and resting on side bars.



Sections through external and internal ought to be ultimately bars of Thomas's Splint.

If the operator has a "boot clamp" (Fig. 1), he fixes it obliquely like the skewer to the boot, as explained below (Fig. 2); if not, he then takes a rigid metal rod or skewer, about 12 in. long and  $\frac{3}{16}$  in. in diameter, pointed at one end. This is passed obliquely through the boot between the sole of the foot and the sole of the boot. The hole on the outer side should be about 3 in. from the front surface of the heel, and the inner hole 1 in, from this surface (Fig. 3).

This allows the leg to lie in external rotation, which is the natural position of the leg in the recumbent position, and the one in which it ought to be ultimately splinted.

A cork or narrow roller bandage is placed over the pointed end of the skewer for safety, and a piece of tape or bandage attached to either extremity of the skewer. These are made taut, and tied to the V at the end of the splint with sufficient tension to maintain the requisite extension.

The patient is lifted on to a stretcher, and a

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all-important point, for the tuberosity is the only place on which the counter-extension can be taken. Too much extension must not be taken through the

Too much extension must not be taken through the foot, and this extension must only be considered as temporarily applied for transport to hospital or nursing home, where permanent extension is substituted as soon as possible. If the temporary extension is too great or persisted in too long, pressure of the boot, especially in cold weather, will cause obstruction of the dorsalis pedis artery. This remark similarly applies to extension by means of a clove-hitch round the ankle or wrist.

The fracture having been extended and immobilized the patient is now ready for transport in ambulance or train. He should be kept warm to combat shock and pain until he arrives at hospital, and morphia may be administered with the same objects in view. admission to hospital the patient is not necessarily removed from the stretcher at once. A varying degree of shock may contra-indicate removal and suggest rather rest and resuscitative measures for some hours. As soon as the patient is in a fit state, antero-posterior and lateral radiograms should be taken, or a stereoscopic pair may be substituted, if the injury is too high up for the lateral view to be obtained. The further procedure will be governed by the clinical findings and the interpretation of these radiograms. The possibility of a nerve lesion should always be considered. Injuries of the peripheral nerves are liable to be overlooked, as the symptoms are frequently overshadowed by the manifest pain at the site of fracture. It is preferable to make this diagnosis before a general anæsthetic is administered. Furthermore, a more accurate prognosis can be offered.

I need hardly say that routine investigation by means of X-ray examination is not only necessary, but essential, if the best results are to be obtained. Perchance it may not be available, and then the fracture is put up in the best position, as ascertainable by the

"suspension bar" is applied, from which the side bars of the splint are slung. After a limb has once been splinted, the side bars of the Thomas should never be allowed to rest on the same plane as that on which the patient's body and sound leg are lying. If this occurs, the side bars fall back and the limb is forced too far forward, thus increasing the deformity, causing pain, and so altering the correct relative position of the limb to the splint into a faulty one. An alternative method of raising the splint is either to attach a "splint-prop" to the end of the splint, or to rest the end of the Thomas below the level of the sole of the boot on some form of support, such as rolled up clothing, etc. If the fracture be simple, the clothing may or may not be cut off the leg at the site of fracture. If a wound be present, the skin round it should be sterilized by painting with 3 per cent. picric acid in methylated spirit, any obvious dirt or other foreign body picked out, and the picric solution applied to the superficial surface of the wound, which is then covered with a sterile dressing, and finally a prophylactic dose of tetanus antitoxin given. A firm pad may be placed on either side of the knee between the limb and the side bars and the leg and splint bandaged at this level; this will give greater security, and will compensate for the extension through the foot not being a very great one. Cotton wool, or padding, should be placed in the space between the thigh and ring of the splint, so as to make an unduly large ring fit more accurately. Any such padding between the outer bar and the thigh will prevent the ring from slipping inwards and losing its purchase against the tuber ischii and so coming in contact with the middle line of the perineum. Padding between the anterior half of the ring and the anterior surface of the thigh will render it impossible for the leg to be lifted up into the forepart of the splint, thereby allowing the ring to slip up beyond the ischial tuberosity. This is an

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eye, by measurements, etc. Extension is applied until reduction of deformity is judged to have taken place and a second pair of radiograms, if possible, is taken with the patient in bed without altering any details of splinting. This will afford a correct appreciation of the condition which is presented, and prove if the reduction or setting of the fragments has been accomplished.

If the position is satisfactory, the next pair of radiograms is taken when the fracture is beginning to mend, and this gives an insight to the progress of the case and if the correction is being maintained. And when callus is visible further attempts to obtain exact position (not already obtained) will no longer be possible unless open operation is undertaken. The necessity for this will, of course, depend on the amount of deformity presented, the loss of function that will follow if the displacement is not dealt with, and the delayed convalescence which will ensue. However, young callus can be bent, and may be likened to a candle in a candlestick on a hot day in summer. It will bend to almost any degree, and so will callus if it be subjected to a gradual and constant force. But, just like a candle, it will crack if too abrupt a strain be put upon it, such as a speedy attempt to correct deformity. Still the correction of alinement can often be obtained by a slow and regular stress.

Before allowing a patient to walk without the aid of apparatus, two radiograms should always be taken at right angles to one another. This is the most accurate way of estimating the amount of consolidation that is present in length, in breadth, and in thickness. It may even be possible in a recent fracture to obtain a radiogram in one plane, which will not show any bony lesion whatsoever; in this case, a grave error in diagnosis and prognosis will result from the taking of the picture in only one plane.

For the successful treatment of fractures it is more

#### INITIAL FRACTURE TREATMENT

than ancillary, it is essential, that a mobile X-ray plant should be available, to be brought to photograph the patient's limb when he is lying in bed. The moving of a patient to an X-ray room is liable to interfere with the extension which is being maintained, and thereby may jeopardize the end-result of his treatment. If mobile X-ray plants were available for the use of any medical practitioner who required one, in my opinion great advantage would accrue both to the patient and the profession.

Every fracture presents four problems of paramount importance:—

- (1) The correction of the deformity—or the so-called setting of the fracture. This should be done at the earliest possible moment after the injury has occurred.
- (2) The maintenance of the corrected position until finality. This, in my opinion, is best accomplished by correct splinting, with efficient extension and suspension of the limb, thus assisting in the nursing and comfort of the patient.
- (3) The preservation of the mobility of the joints, which applies particularly to the joint immediately below the fracture. This joint should be moved at the earliest opportunity, that is, as soon as there is sufficient young callus round the fracture to prevent a recurrence of displacement while the joint is being moved. The object is not only to move the joint, but to stretch and periodically move the young fibrous tissue between the contiguous injured muscles, and progressively to extend the deep scar-tissue, which has become attached to the callus. The subjacent joint may have its ultimate movements restricted, but this is often dependent on the extent of the damage to the muscles and tissues surrounding the fracture, and the limitation will be more marked if the fibrous tissue heals matted together to the callus and bone. Also a

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better prognosis with regard to movements can be given, provided the joint has escaped damage at the time of the accident, as the fracture is situated farther away from the joint.

(4) The gradual restoration of the lost functions of the limb. A great number of these will reappear if the alinement has been correctly restored, and their return will be hastened by the judicious employment of massage, electricity, differential bathing, etc.

A fracture, from the point of view of treatment, must be considered not only as a solution of continuity of bone, but also as a lesion possibly affecting muscles, vessels, joints, ligaments, nerves, etc. The ideal treatment of a fracture should have for its object complete anatomical reposition of the injured tissues with complete restoration of functional power to the affected part. Our aim, therefore, in the treatment of every fracture should be to produce a limb in the most expeditious way as nearly as possible the equal of its fellow, both in function and in appearance.

# The Treatment of Fractures of the Limbs.

By F. D. SANER, F.R.C.S.

Surgeon to Out-patients, and Surgeon in Charge of Fracture Department, Royal Northern Hospital, etc.

HE main objects of the treatment of fractures of the limbs may be conveniently considered under four headings:

- 1. To treat every fracture on its individual merits directed by the X-ray diagnosis of the particular fracture.
- 2. To restore the original anatomical alinement of the bone.
  - 3. To apply appropriate splints.
- 4. To preserve the normal functions of the joints and soft structures of the limb.

Individual Treatment.—Although fractures may be grouped under broad headings and roughly conform to types, inasmuch as certain forces applied in the same situations will produce more or less similar injuries to bone, it has been learned by the routine use of the X-rays that the details of fractures vary very considerably. Before such knowledge was available treatment was based upon pattern methods of reduction and splinting for particular groups of fracture, and splints were regarded, to some extent at any rate, as active factors in the reduction of displacements. At the present time manipulations should be planned to meet the requirements of each case based on the diagnosis, and afterwards the limb is splinted or fixed with the object of maintaining the reduction.

Restoration of Alinement.—There is still a sharp conflict of opinion as to the necessity for a completely

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#### FRACTURED LIMB TREATMENT

It is in the treatment of this latter group that opinions will diverge, and it is bound to depend chiefly on individual experience as to the degree of displacement that is left uncorrected, and at the same time a full return of function guaranteed. Any overlapping whatsoever and any angulation or rotation of fragments must be corrected, while the normal arches of bones, for example, of the femur, metacarpals, and metatarsals must be restored. On the other hand, a slight lateral displacement, perhaps in some situations up to the width of the bone, may be permitted to pass, but an antero-posterior displacement of more than half the depth of the bone, especially in the lower limb, will require further reduction.

In the majority of cases, when impaction is present it should be undone. This may be accepted as a guiding principle, though exceptions may be made when the impaction is slight and alinement good, and also in aged people, when it may be beneficial.

The power of complete repair, by which is meant the ability of the individual to correct an existing displacement by callus formation along the new lines of stress and restore normal function, is well marked in children; it is sometimes permissible therefore, but seldom desirable, to rely on this. Such power of repair is in indirect proportion to the age.

The methods of reduction can conveniently be considered under the headings of immediate and gradual reduction.

The aim of immediate reduction is to restore as soon as is possible the displaced fragments to their original line, and this in the first instance is attempted by manipulation under full anæsthesia, preferably on an X-ray table. The earlier this is done the greater will be the chance of success, since delay permits the effused blood to organize and offer an almost solid resistance.

The displacement to be overcome—and especially, is

accurate reduction of displaced fragments. On the one hand it is urged, and especially is this the case in some continental clinics, that treatment should be directed straightway to early movements, massage, weight-bearing, etc., rather than to the restoration of a perfect alinement, and it is claimed that in this way the function of the limb is more quickly recovered, and union more rapid in spite of some displacement. On the other hand, a perfect reduction of the fragments and their maintenance in the corrected position is urged as the safest guarantee for an eventual complete return of function, and that with appropriate splinting the possibility of sufficiently early massage and movements is not excluded. This view was upheld after the investigation of many late results of fractures by a committee appointed by the British Medical Association in 1912

As a general working rule, therefore, it can be said that the more perfect the restoration of the bone is to its original anatomical line the more certain will be the return of function: a displacement of bone implies the displacement of soft structures, and any degree of mal-union entails an abnormal stress on the joints above and below the site of fracture, which may eventually limit the extremes of movement in the upper limb, or render the lower limb incapable of bearing more than ordinary strain. A complete return of function may be impossible owing to the severity or the actual site of the injury, but if it is accepted that function is dependent upon anatomy, a perfect restoration of the original alinement will give the best guarantee for the eventual full use of a limb.

As regards actual treatment cases may be said to fall roughly into three groups: those with displacement obviously requiring reduction, those without displacement, and, third, when there is slight displacement in the first instance, or after the reduction of a severe one.

#### FRACTURED LIMB TREATMENT

fractures in the neighbourhood of joints or in fracture separation of the epiphyses, in which cases mal-union will necessarily entail permanent limitation of the movements of the joints. In other fractures, such as oblique fractures of the long bones with overlapping, in spiral fractures with a displaced separate central fragment and in other comminuted fractures with displacement, an open operation is the best means of obtaining and securing a satisfactory reduction.

With the improvement in aseptic surgical technique the most serious objection to open operations on bone and the application of an internal splint has disappeared. In some cases, especially in fractures near a joint or an epiphysis, fixation may be unnecessary and is sometimes harmful, but in fractures of the shafts of long bones fixation should be secure. There are a variety of materials now used for the purpose of internal splinting and the opinions—or, rather, the tastes—of surgeons differ in their choice. If fixation is decided on, however, the material used should guarantee security with no fear of slipping of the fragments afterwards.

Gradual Reduction.—The main principle in this method of reduction is that by continuous traction the spasm of the muscles is overcome, and that as these relax the bone fragments will tend to resume or be more easily manipulated into their normal position. principle is the same as for an immediate reduction by manipulation, but is, so to speak, spread over a longer period of time. The application of traction may be necessary in many cases, especially in oblique fractures, in fractures near a joint, etc., but, speaking generally, reliance should not be placed on this method to reduce displacements but only to maintain a reduction already obtained by manipulation; as a means of correcting deformity it should not replace the methods already described. In the treatment of open fractures its scope is considerably wider, since in these the local or general

this the case at the lower end of the limbs—is caused by the direction of the force producing the fracture, and by a reversal of this force a complete reduction is often successfully obtained. In fractures of the fleshy part of the limb the resistance of the muscles caused by spasm and their actual shortening from effusion of blood and inflammatory products into their substance has first of all to be overcome.

It is doubtful if groups of muscles acting in different directions have a primary influence on displacement, but once the fragments have been displaced by the initial force, the spasm and shortening of the muscles holds them in their new position. In addition the recoil en masse of the muscles of a limb tends always to produce overlapping of the fragments.

In order, therefore, to produce relaxation an anæsthetic should always be given, when with steady traction on the limb the manipulations to restore alinement may be carried out. A failure is an indication for a different method of reduction. A second attempt will be defeated as a rule by the same obstacles as rendered the first manipulation ineffective, as for example, the interposition of soft tissues between the fragments.

In those cases in which manipulation has failed, and the necessity for further correction is obvious, an open operation should be used as an alternative means of immediate reduction. It cannot be urged too strongly that operative measures are only a different means of obtaining immediate reduction and, if employed early, are a very accurate and in most cases sure method of correcting severe displacements of bone untouched by non-operative means.

The decision to operate should be made early, as soon as the general condition of the patient and the condition of the skin permit, and should not be delayed until a mal-union has commenced.

Open reduction is especially demanded in severe

## FRACTURED LIMB TREATMENT

necessary, and permit of walking from the earliest stages. The advantages in many cases are obvious, but in ordinary practice expense limits their more general use, since unless they are made with absolute accuracy by an expert it is unsafe to rely on them. In the later stages of many fractures of the lower limb, especially those of the upper end of the femur, a walking caliper should be worn until it is quite certain that union is sufficiently strong to bear the full weight.

In some fractures, notably those in the region of the elbow-joint, a special position of the limb itself may be used to exert traction and maintain position. Flexion of the forearm on the arm exerts a strong pull on a lower humeral fragment; again, the mere attainment of this position does not reduce a displacement, but only prevents the lower fragment of the humerus from slipping backwards after reduction has been obtained. In the same way, in a Colles's fracture with backward displacement of the lower fragment, when owing to the obliquity of the surfaces traction is required, reduction can usually be maintained by flexion of the wrist to a right angle, with or without a splint, a position in which a powerful pull is exerted on the lower fragment. This position should be changed after fortyeight hours, owing to the discomfort it causes, and since in other respects it is faulty. Again, in the oblique or vertical fracture at the lower end of the fibula, in which the lower fibular fragment with the foot tends to ride upwards and backwards, after reduction traction can be exerted on this fragment by inversion and dorsi-flexion of the foot. If such treatment is insufficient, owing to the extreme importance of a perfect result in these situations, the fragments should be replaced and if necessary fixed in position by an open operation.

During immobilization a limb should, as far as is

condition may prohibit any attempt at immediate reduction.

Splinting.—The second important step in the treatment of fractures is that when reduction of a displacement has been obtained, an appropriate splint is applied or the limb itself is fixed in a position suitable to maintain it. It may be emphasized that splints or a position per se do not produce results, but are a means only of achieving certain ends desired by the surgeon.

As a general rule, at any rate in the early stages, the most important use of a splint is to hold the fragments in position, and it is so frequently in this that it is allowed to fail. To avoid failure a splint must meet the particular needs of each fracture, a reason which renders inefficient, in the majority of cases, the routine use of straight wooden splints. Again, a splint should permit of easy access to the limb, so that control of the fragments is not lost, a condition which makes the Thomas's arm or leg splint, or modifications of them, so valuable. Plaster of Paris splints are used in some clinics almost exclusively for the majority of fractures; they have many advantages in that they can be moulded to a required shape, can be removed for the purpose of massage, and for the leg can be made to permit of walking if so desired. It is only a personal objection that in fractures of the leg and ankle the application of a plaster immediately after reduction may cause trouble from swelling of the soft parts, and gives a preference in my mind to a Thomas's splint, at any rate for the initial stages; and if traction is necessary, in fractures of both the upper and lower limbs a Thomas's splint used on a Hodgen principle is an efficient one, and also makes the nursing of these often difficult cases more simple.

There are many forms of ambulatory splint now made for fractures of the lower limb, which are designed to hold the fragments in position, exert traction if

## FRACTURED LIMB TREATMENT

necessary, and permit of walking from the earliest stages. The advantages in many cases are obvious, but in ordinary practice expense limits their more general use, since unless they are made with absolute accuracy by an expert it is unsafe to rely on them. In the later stages of many fractures of the lower limb, especially those of the upper end of the femur, a walking caliper should be worn until it is quite certain that union is sufficiently strong to bear the full weight.

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During immobilization a limb should, as far as is

possible, be maintained in a natural position of rest, while at the same time all muscle groups which act against gravity must be "kept short."

In fractures of the upper end of the humerus the arm should be splinted with a right angle of abduction, so that the deltoid muscle is "kept short"; in any severe case this is always necessary, or if there is any suspicion of injury to the circumflex nerve. For cases attending an out-patient department it is not altogether practicable, since the position is awkward, and entails a cumbersome splint, and in straightforward cases, provided massage and movements are employed early, need not be insisted upon.

When splinting the lower limb it should be in its natural position of rest, which is one of quite considerable external rotation; this permits of greater effect from traction, and also obviates rotatory displacement below the site of fracture. The knee should be slightly flexed, a natural position giving greater comfort, apart from any influence it exerts in supporting a lower fragment of the femur. The extensor muscles of the foot must never be allowed to stretch, and during immobilization the foot should always be in a position of dorsi-flexion and inversion.

In fractures of the shafts of the radius and ulna the forearm should be splintered in supination. This position, in addition to keeping the supinator muscles short, corrects the usual rotatory displacement of the lower fragments. Posterior angular or trough plaster splints are the most convenient for this purpose, and to facilitate their application the patient should be lying down when, with the arm abducted to a right angle, the arm readily falls into supination.

Preservation of the Function of the Muscles and Joints.—The great value, or, it should be said, the absolute necessity of attention to the limb itself, apart from the fracture, is now perhaps fully realized, and

massage and movements are commenced early. The preservation of the general circulation of the limb and use of the muscles and joints with slight voluntary movements from the earliest stages of treatment has not only shortened the length of treatment necessary, but has done away with the majority of those disabilities which arose from neglect of the soft structures, while cases of delayed or non-union are now but rarely seen, except when the fracture has been compound.

The question of how to immobilize a fracture and at the same time permit of movements often presents a real problem; but by the gradual evolution of better methods of splinting and the specially constructed fracture beds, this problem has been made more simple. The difficulties are lessened, too, if it is realized that voluntary movements as opposed to passive are the chief necessity. They are the natural movements, and bring into play the muscles and joints in their normal manner. Slight voluntary movements under supervision may be encouraged from the very earliest stages of treatment, and with these, once the process of repair has commenced, no accident is likely to happen.

In the early stages of fractures, when there is much bruising and swelling of the soft tissues, gentle massage or faradism is not only as a rule intensely soothing, but aids in the restoration of the circulation and absorption of effused products; in the later stages massage over the site of fracture is rarely needed, but should be directed to maintaining the tone of the muscle groups of the limb and its general circulation.

Depreciation of "morale" in a patient suffering from a severe injury is to be closely guarded against. While this is apt to occur in old people, and is a complication to be feared almost more than anything else; it is also a very real difficulty in many cases of all ages with whom the compensation for loss of work is unsettled. For this reason patients should be encouraged to take

an active interest in their injured limb from the start, and made to realize that they have their share of the treatment to carry out.

On rare occasions it may be necessary to sacrifice a joint in order to secure a stable union of bone, more especially in the open fractures near a joint complicated by sepsis. Apart from the exceptional case, however, no joint should be allowed to become stiff, as once it has, treatment is of but little avail.

The natural function of a joint is to move, and prolonged immobilization causes a degeneration of its structures from which complete recovery is rare.

On the other hand, in fractures near or involving a joint, the process of repair may mechanically obstruct its movements for a considerable time. This is so commonly seen in those fractures near the lower humeral epiphysis in children, when callus filling the grooves and fossæ of the bone limits the range of flexion and extension, but if accurate alinement has been obtained, and voluntary movements have been encouraged and maintained from the early stages, an eventual return of good function can be guaranteed. It may be many weeks or months before the callus has been reabsorbed, and the articular ends of the bone have been remodelled, so as to permit of full movements. A warning of this should always be given at the commencement of treatment, in order that it is regarded as a natural process of repair and not as a complication.

In such cases the question of passive movements frequently arises. It can be seen that any movement sufficiently forceful to overcome such obstruction must cause much bruising of the peri-articular tissues, further effusion and organization of blood, and thus will defeat its own object. As a means of suggestion, however, to a timid patient passive movements are occasionally of value, and if there is doubt as to the

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cause of limitation, whether spasmodic or mechanical, examination under an anæsthetic may be necessary.

Occasionally, especially in cases of Colles's fractures in middle-aged or elderly people, there is gross interference with the local circulation, which occurs in spite of all precautions and resists treatment indefinitely. The skin of the hand becomes glazed, bluish in appearance, the nails are brittle, the soft tissues wooden, and all movements of the fingers are very limited in consequence. The suggestion has been put forward that the condition is due to damage to the network of vaso-motor nerves in association with the termination of the posterior interosseous nerve on the dorsal aspect of the carpus. The majority of such cases after much and prolonged treatment are lost sight of; some eventually recover almost completely, but others suffer a permanent disability.

In other limb fractures too, in a less degree, the circulation of the soft tissues near the site of injury or the whole limb is not restored for a considerable time, as indicated by ædema of the limb after use, or sometimes by continuous or occasional spasm of the muscles with consequent pain and weakness.

Treatment of cases with gross circulatory damage is apt to be overdone, and thus lose its efficacy. In my experience progress is more rapid with intermittent treatment; intervals should be given of six weeks or two months, during which the limb is used in the ordinary way as far as possible, between periods of from two to three weeks' attendance in the physiotherapeutic department.

### Loose Bodies in Joints.

BY LAMBERT ROGERS, F.R.C.S.

Resident Surgical Officer, Stockport Infirmary; late Demonstrator in Anatomy and House Surgeon, Middlesex Hospital.

NATTACHED intra-articular bodies are of many varieties. They differ in shape, size and composition. They may occur singly, or there may be several or even many hundreds. They may be associated with joints which are the seat of some pathological change, or with those which, but for their presence, would be perfectly normal. Billroth defined loose bodies in joints as "more or less firm bodies forming in a joint." He distinguished between foreign bodies entering the joint from without, such as needles, bullets, etc., and loose bodies proper.

Loose Bodies in Diseased Joints.-Loose bodies associated with joints, the seat of some particular pathological change, may arise independently, but generally speaking are produced as a result of the pathological condition; as a rule, either tuberculous synovitis or arthritis, one of the neuro-arthropathies, arthritis deformans, or less frequently, some other variety of chronic arthritis. Abernethy found fourteen of these bodies in the hip joint of an old woman in the dissecting room. The so-called "melon seed" bodies consist of fibrin derived from blood clot or more frequently from a fibrinous exudation in cases of chronic tuberculous disease. These bodies, corpora oryzoidea, are commonly met with also in bursæ and tendon sheaths. The loose bodies occasionally found in cases of osteoarthritis are either fatty masses, detached pieces of aborescent lipomata, or chipped-off osteophytes. Massive separated osteophytes may occur in the hypertrophic variety of Charcot's disease.

In tuberculosis bony sequestra occasionally become

loose bodies. In acute infective conditions also intra-articular sequestra may form and lie free within the joint; the whole of an epiphysis may separate in acute suppurative arthritis. The interest of bodies of the type referred to lies principally in the fact that such are associated with pathological conditions which in themselves constitute the greater part of the clinical picture in which the loose bodies form but minor details.

Loose Bodies in otherwise Normal Joints.—In the case of loose bodies in otherwise normal joints, however, symptoms, when they occur, are directly due to the presence of the abnormal body. Loose bodies in joints that are otherwise healthy may be single or multiple. Very curious cases of multiple cartilaginous or osteochondromatous masses have been recorded in the case of the knee, elbow or shoulder joints by Thomas Smith, James Berry, Bradford, and Lovett, Thomson and Miles, and others, and in the hip joint by Caird. These bodies apparently arise from the synovial membrane, which may be studded with small cartilaginous nodules, some of which become detached. It is a generally accepted opinion that loose bodies extruded into joints may continue to develop, deriving the necessary nutriment from the synovial fluid in which they are bathed, and so these bodies may go on distending joints by their actual presence as well as by the effusion, the result of the chronic synovitis they almost invariably give rise to, at some time or other.

Loose Bodies produced by Injury.—It has been thought that injury may chip off pieces of articular cartilage, and from time to time excellent radiograms have appeared showing irregular bodies in joints with apparently corresponding gaps in the articular surfaces of the bones entering into their formation. Injury may also produce effusion of blood, either into the joint itself or into a synovial fringe, and organization later

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result in the formation of a fibrous body. The single intra-articular body is more often found in normal joints than the multiple variety. It is often of curious shape and has a habit of wandering about the articulation. The loose body of this type has been termed Gelenkmaus ("joint mouse"), and Billroth suggested that this name may have arisen from one of these bodies having a shape resembling a mouse. Whether this is the origin of the term or not, the elusive habits of these bodies quite justify the curious name. Although the joint mouse fortunately occurs but rarely and then, as a rule, only in the knee or elbow joints, it may give rise to distressing symptoms. There is much speculation as to its origin. To quote Thomson and Miles in their "Manual of Surgery," "The origin of these bodies is one of the most debated questions in surgical pathology. They obviously consist of a portion of the articular surface of one of the bones, but how this is detached still remains a mystery; some maintain that it is purely traumatic; König regards them as portions of the articular surface which have been detached by a morbid process which he calls 'osteochondritis dessicans.'" There may yet be another explanation to account for the formation of certain of these bodies, such as that removed by the writer from the elbow-joint of a boy of nineteen.

J. W. H., aged 19, was admitted to hospital on January 8, 1925. He was a joiner's apprentice and complained that recently when doing certain work, he had noticed that the right elbow joint was liable to become locked. This most often happened when planing or rotating a screw-driver, and when locked he found it necessary to manipulate the joint with the other hand in order to free it. A month ago he had knocked his elbow, and he ascribed the present condition to this injury. Dr. G. B. Pemberton of New Mills, who sent him to hospital, had, on one occasion, felt a loose body behind the internal condyle of the humerus and noticed at the same time that there was effusion into the joint. On examination the body could not be palpated nor could the patient make it appear as he said he was able to at times. However, in a radiogram it could be seen lying in the olecranon fossa of the humerus, but screening and at the same time moving the joint, failed to demonstrate it. A second radiogram, taken five days later, showed the body still in the

#### LOOSE BODIES IN JOINTS

olecranon fossa and so it was decided to explore the joint. This was done on January 14 through an oblique incision directed downwards and inwards from just internal to the external epicondyle of the humerus to the subcutaneous border of the ulna. The capsule was opened and after searching for a little while the body was discovered and removed. The wound was closed in layers and healed satisfactorily; convalescence was uneventful and he was discharged on January 20. There was complete restoration of function and absence of symptoms subsequently.

The writer wishes to acknowledge his indebtedness to Dr. J. T.

Bailey for permission to record this case.

The loose body proved to be ovoid and of bony hardness, and after immersion in a decalcifying solution for ten days sections have shown it to be true bone.

Origin of such Bodies.—Two factors have to be taken into account when considering the formation of such a body; the possibility of a developmental origin, and the effect of slight injury, such as that regarded by the patient as the cause of his trouble. In considering the possibility of a developmental origin it is perhaps advisable to review, briefly, the process of development of joints.

The Development of Joints.—Joints are formed from the primitive skeletal blastema of the limb buds, in

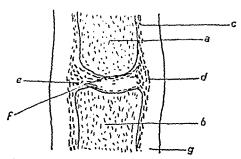


Fig. 1.—a and b. Cartilaginous precursors of cent ends becomes bones forming joint. c. Perichondrium. d. cent ends becomes Capsule. e. Interchondral disc. f. Synovial the interchondral cavity. g. Surrounding soft parts.

which chondrification gives rise to the cartilaginous precursors of the limb bones. As these develop, the primitive blastema lying between their adjacent ends becomes the interchondral disc, which is the

first basis of a joint (Fig. 1). The limb cartilages are ensheathed in perichondrium, which also encloses the interchondral disc and thus forms the basis of the capsule of the joint. The joint cavity arises in the interchondral

disc by a disappearance of the peripheral mesenchymal cells and later of those nearer the centre. The synovial membrane is also formed from the primitive interchondral mesoblast. The perichondrium later becomes periosteum, and that in relation to the joint, capsule. Sir Arthur Keith has pointed out that the cells of the synovial membrane, formed as they are from the interchondral disc, show by their structure, even in the adult, that they are cartilaginous in nature. Rainey and Kölliker long ago discovered odd cartilage cells embedded in the fine villous processes of the synovial membrane of the knee-joint.

The Origin of Certain Loose Bodies .- It may be assumed that certain of these cells retaining their primitive characteristics give rise to intra-articular cartilaginous nodules, which may, or may not, become ossified, and that these become detached, and moulded by the movements of the joint to form loose bodies. In certain pathological conditions it is known that the synovial villi give rise to cartilaginous nodules. Laennec pointed out that these bodies may arise from flakes of cartilage or bone formed upon the inner surface of the capsular ligament or formed outside the joint and then invaginated, a speculation supported by Miller, who recognized external growth and invagination, and internal formation, as the two ways in which these bodies are formed. Billroth believed that "These bodies were mostly osteophytes which entered the joint from without, rarely they formed in the apices of the synovial tufts." Thus, loose bodies in joints may be formed by disease processes, such as tubercle or osteo-arthritis, they may arise from developmental relics in the synovial membrane, from injury chipping off pieces of articular cartilage or possibly in still another way, a combination of developmental and traumatic factors. Although the attachment of the capsule does not always coincide with the position

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of the epiphyseal line, as one would expect from the above account of the formation of joints, and migra-

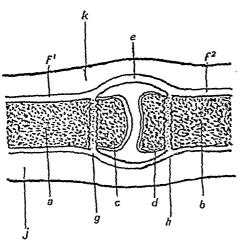


Fig. 2.—a and b. Diaphyses of bones forming joint. c and d. Epiphyses or ossa. He has defined intra-articulare. e. Capsule.  $f^1$ ,  $f^2$ . Periosteum. them as "separate g, h. Epiphyseal lines. j, k. Soft parts.

tions of the attachments of the capsule have occurred in many, generally speaking, there is but little digression between the capsular and epiphyseal lines. As Wood - Jones has pointed out, we may regard epiphyses as ossaintra-articulare.

ossifications

veloped in joint cavities as specializations of articular cartilages" (Fig. 2).

We have previously referred to the case of suppurative arthritis with complete separation of an epiphyses lying in the joint as a loose body.

It is conceivable that separation of epiphyses may also occur in healthy joints and give rise to loose bodies; particularly in the case of the elbow, because here we may have a small accessory or tip epiphysis to the olecranon process of the ulna. In the case we have mentioned the loose body occupied the olecranon fossa; it arose as a result of an injury and in a subject in whom ossification of the tip epiphysis (assuming such to have been present) would already have occurred (i.e. from the tenth to fifteenth year). Actual fusion with the remainder of the olecranon may or may not have occurred, but even if it had, the probability is that union would not have been well consolidated. Once

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## Operation for Full-Time Extra-Uterine Pregnancy.

By DONALD W. ROY, M.A., M.B., B.CH., F.R.C.S.

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HE following case of a full-time extra-uterine pregnancy, treated by complete removal of the fœtus and sac, presents a number of points of interest.

Mrs. L. H., aged 24, was admitted to St. George's Hospital under my care on April 26, 1924, complaining that pregnancy had lasted over eleven months. She had had one normal confinement five years before, and the child was still alive. The catamenia had been regular till May 6, 1923, but no proper periods had occurred from then until April 26, 1924. There had been slight vaginal bleeding following an examination at the end of June, 1923. Fætal movements had been felt until February 4, 1924. About this date she described an attack of abdominal discomfort with a feeling that something had given way, accompanied by vomiting and disturbances of sensation like electric shocks and feelings of heat. No definite pain was complained of, and consciousness was not lost. The attack lasted about twenty minutes. Since then no fætal movements had been felt, and no fætal heart sounds had been heard. Just before admission a slightly offensive brownish discharge was noticed.

On examination, the patient's general physical condition was good, the temperature a little above normal, pulse rate 90. She was in a very unstable and excitable state of mind, the result apparently of extreme anxiety. Her condition was serious enough to make one wonder what would be the outcome of any additional mental strain.

Per abdomen, a large tumour, the size of a full-time pregnancy, could be felt rising from the pelvis a little to the left of the mid-line. Its consistency was not that of a normal pregnant uterus. Two hard nodules could be felt to the right of the upper pole of the tumour which was firm in consistency, while the lower half was elastic and gave a fluid thrill. No fœtal heart sounds were heard. Per vaginam, the cervix was pointing to the left, displaced to the right and hardly softened. The body of the uterus was only slightly enlarged, and was lying obliquely across the pelvis to the right of and below the abdominal tumour.

On April 28, 1924, the patient's mental condition had sufficiently improved for her to be examined under an anæsthetic. By this

separated, movements would soon render the body

smooth and ovoid. When such an origin was suggested to a pathologist he was discouraging, remarking that loose body was probably fibrin. He has since admitted, however, that sections of this body show it to be true bone. Although the tip epiphysis (Fig. 3) occurs quite frequently (J. E. prove that there was f. Head of radius. necessarily one

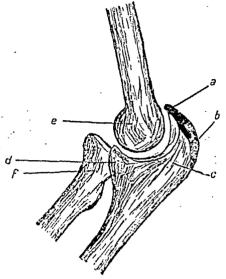


Fig. 3.—a. Tip epiphysis. b. Olecranon epiphysis. c. Olecranon process. d. Coro-Frazer), we cannot epipnysis. c. Oleuranon process. c. lower end of humerus.

(Diagram made from X-ray plate.)

present in the case referred to, but there seems to be strong ground for supporting the suggestion that certain of the isolated loose bodies found in the elbowjoints of healthy young adults represent separated epiphyses.

In conclusion, therefore, it may be stated that these curious little intra-articular bodies, which vary so much in number, shape, size, and composition, may result from disease processes; they may arise from developmental relics, cartilage rests in the synovial membrane or capsule; they may be produced by injury chipping off pieces of articular cartilage; or they may represent separated epiphyses.

in this case. An X-ray, though not essential, was useful for confirmation.

In the operation I prepared to meet formidable difficulties, and to limit myself perhaps only to removing the fœtus and marsupializing the sac with or without detaching the placenta, if there was difficulty in controlling its blood supply. By opening the sac and removing the fœtus first of all, it was found easy to determine the exact location of the placental site and by proceeding deliberately to secure its most accessible blood vessels. It soon became apparent that the removal of the whole sac and placenta would not be unduly difficult, nor entail much more risk than that of a rather adherent broad ligament cyst. I found myself, therefore, able to carry out the ideal treatment for these cases, namely, removal of fœtus and sac entire.

I should decline, however, to be so much encouraged by success in this case as to approach any similar case in future in any other spirit than one of profound respect. I should proceed in the same stages, namely: (1) Extraction of the fœtus after opening the sac with great care to avoid disturbance of the placental attachments. (2) Careful exploration of the sac's connections and the position of the placental site. (3) Securing all possible vessels going to the sac as they became accessible; and (4) only attempting to remove sac or placenta if in the former case the whole, and in the latter case, the majority of the vessels had been secured first. I think, as in my case, the most hopeful way to approach the sac with a view to its separation is from below; the attempt at its separation can then, if necessity arise, be limited to the securing only of the main vessels in this neighbourhood, followed by the marsupialization of the sac, if its vascularity or connections make that the safer course than persistence in its complete removal.

examination the position of the uterus below and to the right of the tumour was confirmed and a sound passed into it only 3\frac{3}{2} inches. The breech of a fœtus could be distinguished high up in the left fornix. An X-ray photograph showed a fœtus occupying the position of the tumour with its breech lying to the left of the pelvic brim. As the patient's temperature began to rise at night, and examination of the urine showed the presence of a B. coli infection, operation was

decided upon.

May 1, 1924. An incision was made from the pubes Operation. to three inches above the umbilicus, the tumour exposed and carefully packed off. The sac appeared to be composed mainly of laminated and discoloured blood clot covered by peritoneum, under which many large vessels were coursing, and to which omentum and large intestine were extensively and intimately adherent. An incision was made over the upper anterior part of the sac where it was least vascular and the fœtus extracted. It showed slight maceration, but appeared quite well formed and corresponded in size to a child of about 8 lbs. weight. The liquor amnii was brown but not offensive The connections of the sac were now examined, to see if it was possible to remove either it or even the placenta with safety. · Consideration of the experiences of other operators had convinced me that, even in a case where the fœtus had died some weeks previously, it might easily prove disastrous to commit oneself too fully to attempting either of these courses, unless the blood supply of the sac could be reached and controlled either wholly or for the most part first. The position of the placenta suggested that the main blood vessels would be found below. The sac was intimately connected with the left cornu of the uterus and the left round ligament which passed across its front. Above at the level of the epigastrium and to the whole of the right side of the sac the pelvic colon much displaced was intimately adherent. In order to try to secure the blood supply of the placental site, the left cornu of the uterus and round ligament were clamped and divided, and a thick mass of tissue connecting the sac with the left side of the uterus was also ligatured and divided. After doing this, the lower part of the sac was found to be comparatively easily enucleated from the base of the broad ligament, and there was not much vascularity till the ovarian vessels were encountered, secured and divided. The rest of the sac, with placenta in situ, was then quite easily shelled out entire from under the pelvic colon without damage to the latter's vessels. The enormously displaced sigmoid was drawn down to the pelvis and brought into place, and the space between it and the broad ligament closed with catgut sutures. The peritoneal cavity was closed without drainage, leaving the uterus and right appendages uninjured. At the end of the operation the patient's pulse rate was 130 and of good quality. She was discharged on the twenty-fifth day after the operation, and was examined by me again on March 25, 1925, when she expressed herself as quite well.

The diagnosis of full-time extra-uterine gestation with the help of an anæsthetic presented no difficulty

from X-rays except in the wave-length and rate of vibration.

Treatment by colour is the endeavour to modify the vibrations of the whole or part of the human body by the application of a vibrating force of a particular potency, whereby those vibrations which are too slow may be quickened and those which are too rapid may be lowered. In colour we have a sufficiency of vibrations for our purpose.

Treatment by colour is not new. Dr. Babbett issued a large work on the subject in 1878, and Dr. Starr White and others have worked extensively on these lines.

Colour affects not only the physical but the mental and emotional aspects of man as well. In the Lumière photographic factories at Lyons the use of red light had to be discontinued owing to the irritating effect of long exposure on the workers, and a particular shade of green substituted for it.

It is now fairly well recognized that disease may take its origin in the mental and emotional as well as in the physical aspects of man, and with colour we have the means of attacking it upon any of these levels. Light as a whole is being more and more exploited as a therapeutic agent, and heliotherapy, including such modifications as X-rays, ultra-violet rays, and the like, are establishing themselves upon a sure basis.

My own experience after several years' work on these lines is as follows: The three most useful colours are green, blue, and orange. Green has a remarkably soothing effect upon the nervous system; it dilates the capillaries, giving a sensation of warmth and relieves pain; it also lowers blood-pressure. Blue contracts the capillaries and therefore gives a sensation of coolness; on these lines it tends to raise the blood pressure. It appears to have an influence on the body

## The Use of Colour in the Treatment of Disease.

By J. DODSON HESSEY, M.R.C.S., L.R.C.P. London, W.

UNLIGHT, that great source from which the life of the world is derived, is becoming more and more recognized as a therapeutic agent. Much has been written recently on the effects of sunlight as a whole, and also of those forms of light comprising X-rays, ultra-violet rays, and the like. But little has been done in the way of exploiting these rays when broken up as colour.

In colour we possess a force, having a known rate of vibration, with a speed of 186,000 miles per second; a force that has definite effect upon all kinds of life, vegetable, mineral, and animal, details and examples of which may be found in any standard book on light; a force which can be varied in its vibrational rate according to the colour employed, and so can be tuned to the condition which it is required to affect.

The effect of different colours upon the growth of plants has been the subject of many experiments, and it is reasonable to suppose that if the vegetable kingdom can be so influenced, the animal kingdom should be subject to the same forces. The human entity is a more complex thing. Man possesses mind and emotions, in addition to his physical parts, and upon these also colour has a marked influence.

It has been objected that colour can have none other than an emotional or æsthetic value, but no one doubts the efficacy of X-rays or ultra-violet light, and it has been stated definitely by Sir William Bragg and Professor Richardson that light differs in no way

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to employ. One is to leave the patient in a bath of the colour, the colour being thrown over him and reflected from all sides by the colour-screens; in this he can stay for a variable time, one hour under green and less with other colours, the red being given for not more than fifteen minutes. Treatment should be daily.

The other method demands the presence of the practitioner, and during this process his right hand should be resting lightly on the head of the patient. It is an interesting point that certain patients under the influence of colour will develop a slight condition of hypnosis, when they are able to get a very clear visualization of the colour employed, not only as a cloud in front of their eyes, but all round them. They may go further and may be able to make use of what Dr. Eugene Osty terms "metagnosis," a kind of interior vision in which they can see the colour permeating the body.

The type of case amenable to treatment by this method is varied. I have had very satisfactory results in such conditions as neuralgia, neuritis, insomnia, asthma, tinnitus aurium, high blood-pressure, rheumatoid arthritis, lumbago, chronic bronchitis, irritable heart, auricular fibrillation, mental depression, shell-shock, and various forms of nervous debility. My object will have been achieved if I can interest my professional brethren in this interesting and often effective method of treatment.

cells and the blood, as distinct from the nervous system, and reduces inflammation. It also acts as a tonic. Orange is a general stimulant, tonic, and vitalizer. Other colours used are yellow, red, and amethyst. Yellow is a mental stimulant. Red is warming and irritating, and must be used sparingly, particularly in inflammatory conditions. Amethyst is stimulating and invigorating.

With regard to treatment, the method I employ is as follows:—

The patient is seated in an easy chair or reclining on a couch in a darkened room. The light, enclosed in a dark lantern—I use a 1,000 candle-power lamp—is modified to the desired colour by screens of gelatine or some similar substance, and thrown upon the patient, who should be wearing a minimum of clothing—a white gown is preferable, and dark clothes should be avoided. I have found it useful to use a sheet of thin silk of a similar shade to the light to throw over the patient, and I also use hangings of the same colour in order to get the benefit of the reflected light.

Having chosen the colour it is important to get the right shade, and this can only be arrived at by reference to the pulse and blood-pressure. For instance, if green is needed and the blood-pressure is high a strong green is indicated; whereas if the blood-pressure is low a pale shade is required so as not to reduce it still further. In this connection I have found that head-aches associated with high blood-pressure are increased by blue and relieved by green, the converse also holding good.

The question of shade is one of the most difficult points to determine, and one may sometimes get an indication from the patient, who will evince a decided preference for a particular shade. This, however, must not influence the practitioner in his choice of the colour, but only as regards the shade, as a patient will frequently object to a particular colour even though it is really the needed one, and this objection will soon pass off as the influence begins to manifest itself.

The colour then being chosen, there are two methods

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# The Value of Medical and Veterinary Collaboration.

By FREDERICK HOBDAY, C.M.G., F.R.C.V.S., F.R.S.E.

President of the Comparative Section of the Royal Society of Medicine.

HE medical and veterinary professions are both branches of one tree, and we can do much in common to help one another. The analogies and differences between the diseases of our mutual patients give much food for thought, and it will be by reasoning these out that we shall gain much knowledge in the future, which will help us in the fight against disease. You of the medical profession have your differences of temperament, sex, age, climate, and numbers of other things to consider, and we, too, have these; but, in addition, our patients include many more varieties of species than yours, and we are able to consider them from a much greater variety of aspects.

Take, for instance, the questions of food and drink. Amongst our patients we have at any rate the advantage that we have no alcoholics, and yet we get as high a proportion of cases of cirrhosis of the liver in old age as you do. I mention this cirrhosis specifically because I well remember that, as a student, I was led to understand that this condition was particularly the attribute of the heavy drinker, and in animals such indulgence is unknown. Some of our patients are entirely carnivorous, others herbivorous only, and a third category are omnivorous. These points alone are of interest to the medical man who is studying some human disease which he may consider to be of a dietetic nature, or to be entirely of animal or vegetable origin; and in this category no doubt there will flash across your mind the various theories that have from time to time been

brought up in connection with the suspected dietetic causes of cancer—a disease which occurs alike in herbivorous and carnivorous feeders.

As with your patients, some of our animals are very temperamental, either nervous and excitable, or unduly phlegmatic; and we have animals which are brilliant in brain power, and others which are dull and stupid. We have, too, our cretins, and those which simulate similar symptoms to insanity in man.

The diseases of birds and fish, too, come under the ægis of the veterinarian, and the tumours and diseases of the parrot, the domesticated fowl, the salmon, and the trout, have given much interesting food for thought and comparison with the tumours of man. The fact that our common enemy, cancer, exists in the fish tribe, was first demonstrated by a veterinary pathologist, Professor Gilruth, M.R.C.V.S., of New Zealand.

The therapeutic action of drugs with us has to be considered for one animal in a totally different way from that of another kind, and as illustration of this I cannot do better than bring forward the two drugs morphia and strychnine. The former, for example, acts as a deliriant when administered to the horse and cat, whereas to the dog and the pig it is as useful a narcotic as it is to man. The amount which in the dog can be taken without producing toxic effects is extraordinary, so much so that I am unable to tell how much would poison even an average-sized terrier. Strychnine, on the other hand, has to be used with the greatest caution, particularly for the dog and the cow, so that the veterinary surgeon who is experienced in canine practice will rarely permit this drug to be given over to the care of his client for administration, preferring always to have the patient under his eye while this is being used.

When considering the diseases produced by parasites one has to remember that some of the tapeworms of

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#### VALUE OF COLLABORATION

cover our mistakes, whereas with you your mistakes (perhaps this is not without its disadvantages!) so often have to be buried.

For accuracy in diagnosis you in medical practice are able to ask questions to which your patient can give replies; we are handicapped in this respect, although we have the advantage that at any rate we are not told lies.

The first essential of the student is to know something about his patients in a state of health, as otherwise he cannot possibly have as good an acquaintance with them when diseased. Errors in dietetics bring on diseased conditions as surely in animals as in man, and in this respect we have the advantage of a much greater control, as animals can only eat what is set before them, and are not able to pick and choose their luxuries at will.

Gastritis, indigestion, colic, internal parasites, colitis, the swallowing of foreign bodies, intussusception, ulcerative conditions of the bowels, are all animal ailments, and our treatments are carried out on much the same principle as are those of similar conditions in man.

With us, too, one has always to recollect the anatomical variations of the organs of digestion, as some of our patients, such as the horse, dog, pig, and cat, possess one stomach only, the camel has three, whilst others, such as the ox and sheep, have four.

Where, however, we can help one another more particularly is in the eradication of some of the great scourges of the day, in the formation of a scheme of preventive as well as curative medicine; and this especially applies in those diseases to which animals are liable to suffer to an equal extent with man. It is impossible to introduce them all, but I will select as types, glanders, rabies, anthrax, and tuberculosis. With some of these the veterinary profession of necessity stands alone in the front trench, for these diseases cannot appear in man except through the agency of the animal; and once they are stamped out in animals,

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man require an animal host before their life cycle can be complete; such, for example, as the Tænia saginata and the Tænia solium, which concern the human physician, while they come to worry the veterinarian in the cystic stage of their history as the Cysticercus bovis, or the Cysticercus cellulosæ; true connecting links between the two professions.

The question why certain species of animals possess immunity to certain diseases becomes a mutual speculation and source of study, and is a point to be made use of in the fight against disease when once the problem is solved. Why, for example, should the ox be insusceptible to glanders, a disease to which man and all the members of the horse tribe readily succumb? There must be some reasons, some law of nature which is followed out, the clue being in our grasp if only we can find it—and it will be the quicker found by the mutual collaboration of the earnest thinkers and workers of the two branches of the science of medicine.

One of our keenest observers, the late Mr. William Hunting, F.R.C.V.S., is responsible for the following quotation: "Careful observation makes a skilful practitioner, but his skill dies with him. By recording his observations he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

This quotation is one which the clinician should carefully ponder over, as if every one of us would make notes of and contribute to his professional journals even a thousandth part of what he meets with in the way of his clinical experience, the benefit to his profession would be enormous, for the waste of pathological material which goes on every year is appalling. This applies even more to us in veterinary practice than it does to you in human work, for we have the advantage that in the majority of instances we are able to get a post-mortem examination made by which we can dis-

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or animal products, they automatically cease to exist in mankind.

Glanders and rabies are two typical instances, and medical practitioners in England at the present day have to thank the veterinary profession for the freedom of their human patients from these horrible diseases, as each is now practically non-existent.

Twenty-five years ago glanders existed to such an extent in certain of our large cities that an average of over 2,000 horses per annum were found to be suffering from this disease alone and were destroyed, the stables in which they existed being a continual source of danger to the men employed around them; whereas the present summary of returns under the Diseases of Animals Acts shows that this country can now be stated to be practically free from this terrible disease.

For this eradication we are indebted to the intelligent use of mallein, an agent which we can use with freedom as a test for the presence of glanders in the system of a horse, but which, I understand, is too drastic in its effects on man to be administered to him at all.

By its aid the horses and mules of the allied armies during the late war were freed, and kept free, from a disease which was rampant in former wars, and which had been responsible on previous occasions, not only for thousands of deaths, but for debility and commercial loss to the extent of hundreds of thousands of pounds.

The danger, too, to man must not be forgotten, as the attendant on a glandered horse must always be taking risks, and, once contracted, the disease is, as you know full well, practically always fatal. Its difficulty, too, of diagnosis in man is great, and unless one has been informed of the fact that the patient had been employed in a stable one could readily be puzzled in regard to diagnosis.

Twice have I seen the *post-mortem* examinations of glandered men, and in one case the medical diagnosis

#### VALUE OF COLLABORATION

imported into Great Britain as food for cattle. It is practically always through animals or animal products that anthrax reaches man, so that to stamp it out of the lower animals would mean its eradication from man—a further proof of the necessity for close combination between the veterinary and the human medical professions, and the importance of the study of animal pathology in relation to human disease. Sclavo's serum, the sheet anchor in the human treatment, is useless for the animal, and both in horses and cattle this disease still holds its own as one of the most rapidly fatal, for the patients of the veterinarian, of all microbial diseases.

Tuberculosis is pre-eminently a disease in which the clinicians of human and veterinary medicine must work together; the human physician to protect his patient from drinking tuberculous milk, and the veterinarian to detect the animal supplying it.

One would think it unnecessary to insist upon milk—so vital an article of diet, and for children and invalids especially—being supplied pure. If it were beer or chocolate that was being contaminated the world would be roused and the shopkeepers mulcted in all kinds of penalties. How much more is it necessary that milk should be pure, and that a cow whose udder is so badly affected that she emits myriads of the death-dealing bacilli should be destroyed.

One reads again and again of the high percentage of tuberculous milk samples taken in our large cities and of the deaths of 10,000 tuberculous children annually, and yet so little officially is being done. To pasteurize or sterilize the milk is not nearly so good a method as to attack the disease at its source, and its source is the cow. This is an undertaking in which the astute veterinary clinician finds room for his abilities and is able to render valuable assistance to the State and to the community by collaboration with his medical confrère. In so far as the cow is concerned he is, by his training, the man

the dogs, but in Great Britain our isolation by the sea gives us an advantage of which we make the fullest use. All our veterinary patients are susceptible, and it can be contracted not only by domesticated animals but also by wild ones and even by fowls.

Anthrax, if the animal products question were ruled out, would be another instance of those diseases which would not be seen by the human practitioner for diagnosis or treatment, and the necessities for stricter measures in dealing with it have been repeatedly brought forward for earnest consideration. International Labour Congress held in Geneva in 1921, an International Committee was appointed to consider the disinfection of wool and hair infected with anthrax, the methods of preventing infection amongst flocks, and the possibilities of dealing with infection from hides, skins, and other material. The Liverpool Experimental Disinfection Station has thoroughly justified the cost of its establishment, and deaths from wool-sorters' disease have been reduced by more than 50 per cent. since the compulsory disinfection of animal products admitted to Great Britain from countries where anthrax is prevalent. The veterinary practitioner sees the disease most commonly in cattle, although it may be met with in the horse, sheep, pig, and even the dog, although the latter animal is less susceptible than the others.

Bone manure, foreign cake, and other feeding stuffs, obtained from countries where anthrax is rife and improperly controlled, are blamed largely for its appearance amongst stock. It is somewhat difficult to control, but the precautions of the Veterinary Advisors of the Ministry of Agriculture have reduced the number of outbreaks in animals very considerably, and if only the disinfection of imported things such as hides, wool, and hair can be effectually controlled on entry into the country, we shall hear of fewer cases in man. The same may be said in regard to the supply of cotton and other cakes

### Further Points in Car Selection for Doctors.

BY OUR MEDICAL MOTORING CORRESPONDENT.

OR the average practitioner I have sketched, in a previous article (THE PRACTITIONER, October, 1925), a suitable motor menu, from which he should satisfy his needs. For those whose motor appetite is more fastidious, and who believe in that proverb "Who is rich? He who enjoys his riches," rather than that "To abstain from desires is riches," I suggest the following cars as worthy of consideration. These I have placed in alphabetical order, with approximate prices against each. In regard to the more expensive models the chassis price only is given, and to this must be added the cost of the carriage, which varies with the type chosen and the workmanship. The picture-frame maker has been known to boast that it is his work which makes the picture. This is, of course, too sweeping an assertion to make in respect of the chassis and body; nevertheless, there is little question that the coachwork is a strong factor in the choice of a car. This was, indeed, well shown by the exquisite examples staged in the carriage-work section at Olympia. And now for the list:

The Austin Motor Co., Ltd., five-seater de luxe, £525, Carlton saloon, £650; Bentley Motors, Ltd., 15.9 h.p. chassis, £895, 37·1-h.p. six-cylinder chassis, £1,450; Crossley Motors, Ltd., six-cylinder 18-h.p. touring car, £675, 19·6-h.p. saloon, £1,030, five seater, £785; The Daimler Co., Ltd., 35-h.p. saloon de luxe, £1,540, 20 h.p., £1,065; De Dion Bouton, Ltd., 12-h.p. saloon, £715; The Lanchester Motor Co., Ltd., 21-h.p. six-cylinder chassis, £1,000; 38·4-h.p. chassis, £1,800; Minerva Motors, Ltd., 14-h.p. saloon, £790, 20-h.p. six-

upon whom reliance can be placed to state whether the produce, the milk, and the producer, the cow, can be certified free from disease.¹

Recently attempts have been seriously made, both in France and England, to immunize the calves against tuberculosis, the two vaccines most favoured being those of Calmette and Guerin² of the Pasteur Institute, and of Dr. Nathan Raw,³ of London. The former use a live vaccine, while that of the latter is a dead one. The process consists in vaccinating the calves at three days old, and again three weeks later, and keeping them for a few weeks away from all infection until they have acquired an immunity, before turning them amongst the rest of the herd.

The scheme is on its trial and, up to the present, the results have been most encouraging. Should the idea prove correct an owner can gradually build up an immune generation of calves, as within ten or fifteen years all his old original herd will in the natural course of things have gone to the butcher, and his newly-growing stock will be free. The risk to be taken is in buying in to replace losses; these, of course, should be bought subject to the tuberculin test.

The general health and condition, too, of tuberclefree animals is infinitely better than that of the infected ones, and they are not prone to suffer so materially from the same diseases. If this prove a success it will go a long way towards eradicating tuberculosis from our children, as it is universally acknowledged that the present infected milk supply is the chief source of a very large number of deaths in children under five or six years of age, and that the tubercle bacilli, which are the cause of these, are of bovine origin.

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cylinder chassis, £690; Renault, Ltd., 26·9-h.p. six-cylinder chassis, £735; Rolls-Royce, Ltd., 21-h.p. chassis, £1,100, 43·3 chassis, £1,850; Sunbeam Motor Co., Ltd., 20-60-h.p. six-cylinder chassis, £795, new three-litre six-cylinder chassis, £950; Vauxhall Motors, Ltd., Ltd., 23-h.p. five-seater, £895, 25-h.p. limousine on the new single sleeve six-cylinder chassis, £1,675; Wolseley Motors, Ltd., 24-55-h.p. six-cylinder limousine, £1,300.

I think I have sorted out the firms with the best wares. I trust my colleagues will not only travel hopefully past those they elect to visit, but also, in doing so, arrive at a satisfactory decision. In my time many have buttonholed me by letter and told me about the weird behaviour of their cars. I always enjoy and appreciate this sort of correspondence, and shall be pleased to reply to any notes addressed to me at the offices of The Practitioner. In the list picked out both English and foreign makes are included. Our own country, I suggest, does provide as good, and probably even better, value than can be had elsewhere.

Among the cheaper cars, I would lay stress on the value of the Austin 20, as good a proposition as any, and, what is more, also most reasonable in price.

The Bentley standard model, beyond that a fan is fitted, remains unchanged from the one of last year. The special features are two inlet and exhaust valves in each cylinder. By this means the seating area is increased by 50 per cent., and, in consequence, the cooling surface is greater. A greater volume of water is also brought to bear on the seating itself. In addition, the hammering effect on the seating of a single large valve, with a strong spring, is divided between two smaller valves with light springs. Two magnetos are employed; each cylinder has two sparking plugs. In theory this should not add to the engine efficiency; bench tests have proved otherwise. The six-cylinder is a new model. Both feature an automatic valve in the water-circulating system, ensuring that when the water temperature is high it is cooled by passing through the radiator, otherwise engine efficiency is

#### CAR SELECTION FOR DOCTORS

maintained by an adequate water temperature. Other points are four-wheel brakes, and pump oil circulation with filtration.

Crossley Motors are marketing the 19.6 and 20-70 h.p. models of last year, and, in addition, they have a new-comer, the six-cylinder 18-50 h.p., with overhead valves.

The Daimler has a four-wheel brake system, in which all brakes can be simultaneously adjusted by turning a single handle that is accessible under the bonnet. The sleeve-valve engines now embody an advance as a result of altered material, resulting in obtaining higher power. Governed timing and dual ignition, and a worm-driven axle are the chief features. In appearance these cars have undergone an improvement, partly due to the lower floor level, which adds to the convenience of the user, and, in addition, to the fitting of a new radiator.

The De Dion Bouton made its first appearance in the 'eighties, and has ever since maintained its position in the forefront of French designers. The English all-enclosed coupé and four-door saloon are excellent examples of coachwork.

The Lanchester car, since its inception more than a quarter of a century ago, has been associated with all that is best and most up to date. For a number of years the company has followed a one-model policy, the high-powered car, the "forty" horse-power. Recently they have introduced a second model, the six-cylinder 21 h.p. The features on both embody: six-cylinder engine, unit construction of engine and gear-box, overhead valves and camshaft, thermostat water temperature regulator, cantilever rear suspension, underslung front suspension, body mounting on rubber buffers, and four-wheel brakes. A feature of the larger model is the employment of epicyclic gears. This form of power transmission is said to be complicated. If complication be measured

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by the number of parts in a piece of mechanism this may be considered true, but in this case the mechanism is really beautifully made, not delicate, and does achieve its object, namely immunity from trouble. Anyone with this gear can slip into neutral when travelling at any speed, and, what is more, back into top or any other gear, without any extra manipulation of the clutch pedal. I really think that its adoption might be considered by many car-makers whose productions are notoriously difficult for the average driver to handle. I must add that ordinary gears can be changed, even if a clutch stop is not fitted, when the driver takes the trouble to acquire the skill. Many do not. Incidentally it may be mentioned that the Ford has epicyclic gears.

The Minerva cars are made in Antwerp. They employ the Silent-Knight type of sleeve-valve engine. They turn out a 20 h.p. and 30 h.p. six-cylinder, and a 16 h.p. four-cylinder. A Scintilla magneto unit and a Dewandre Vacuum-Servo brake system are fitted. The reliability of the latter consists in the fact that if, by any conceivable mischance, the vacuum fails, then the four wheel brakes operate by ordinary pressure, applied by the pedal. I have found this car both lively and docile in traffic, and the clutch was smooth acting. My test was not on a vehicle supplied by the firm, but on one the property of a surgical colleague.

I spent a very happy day at the Renault works near Paris not long ago, and, as a result, can assert that their materials and workmanship are good. Their six-cylinder models as shown are in every way up-todate; Servo four-wheel brakes are standard.

The Rolls-Royce, since the early days when they first produced the Silver Ghost, have been famous for their excellence of material and construction. The Ghost has not become even now a real ghost, as its manufacture will be continued, in addition to the new

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overhead valved "Phantom," and the 20 h.p. If I were asked to name my selection, regardless of cost, I think I should say Lanchester or Rolls-Royce; better cars I could not pick out, and they may well be that, for they are both expensive.

The Sunbeam, in addition to continuing the manufacture of their 20-60 h.p. standard six-cylinder and quite satisfactory model, are producing a 30-90 h.p. The chief particulars are: eight-cylinder engine in line, four-speed gear-box, and Servo principle four wheel brakes.

The Vauxhall programme includes a 23-60 h.p., and a 30-98 h.p. four-cylinders with overhead valves, fourspeed gear-box, and four wheel brakes. Their new six-cylinder 25-60 h.p. has single-sleeve valves operated by worms and worm-wheels, a detachable head, a builtup crankshaft with ten bearings, and a perfect shape of combustion head with the sparking plugs in the dead centre, certainly the ideal position. An experimental engine has been run on the bench for 500 hours, and absolutely no signs of wear were detected. This is certainly a good test, and when further ones of many months on the road are added doubtlessly the public will become keen purchasers. The four-wheel braking system employs the hydraulic principle. The Vauxhalls certainly proved their value at the front, where many were used for staff purposes. I have travelled in a good many, and am strongly of opinion that they should be inspected by all who are in search of a car at their price.

With regard to coach work, if a chassis is bought, I can recommend among the large number of really good firms, Messrs. Barker, Egerton, Ltd., Hooper, Morgan and Park Ward & Co. Some may be interested in the new carmaloid painting. It has the advantage that it dries quickly. From actual inspection of cars so treated, it seemed, when polished, to look as glossy as any

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ordinarily applied enamel. After application it is not inflammable, and does not flake off or crack. The cars I have come across have certainly had a beautiful rich tone, and did not seem to be scratched by dust.

A great consideration when buying is after-purchase service. I believe that all the firms I have named can be relied upon for fair and even liberal treatment of their clients. Is after-service likely to be called for within the period of the car's guarantee? Motors are now built of really good material and well constructed, so trouble is unlikely to occur, but however careful the inspection of parts may be, a faulty one may occasionally be used, with disastrous results.

The question of whether one type of engine or transmission is more liable to give trouble than another can, I think, be dismissed; but it is as well not to invest in an absolutely new type and design until, anyway, time has shown whether it has come up to the standard predicted. Possibly many do turn out ideal, still it is as well to allow others to carry out the ordinary purchaser's Regarding, say, sleeve-valves and the more common poppet-valves, the former have now been in use some seventeen years and can be regarded as having absolutely established themselves as reliable. argument in favour of the latter type is that anyone, even an owner-driver, can attend to them, whereas the sleeve form need experts. Still, as neither are nowadays prone to morbid conditions, these points need not be considered. Certainly now that steel sleeves are employed, their lightness and great port area enable them to sustain high power with perfect balance at speeds of 4,000 revolutions a minute, and thus, as already mentioned when speaking of the new Daimlers, an improved standard of all-round road performance is obtained. The great advantage of this engine is its smoothness of operation and its silence. As an example of the durability of the sleeve-valve, it may be mentioned

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that the Royal cars, which were so fitted, and have recently been replaced, were continuously in service for fourteen years.

I do not wish to labour the point, but it must be remembered that the more expensive cars also cost more to run. A car that can do seventy miles when all out is naturally expensive in the matter of fuel when used at much slower speeds for town work. A good many of the higher-priced vehicles demand more looking after than some owner-drivers care to devote, thus needing the added expense of a chauffeur. Anyone with a cheaper, but also quite efficient machine, can manage with, say, just a casual man to wash it, and by revarnishing once a year the car can always be turned out so as to appear quite presentable. The more expensive vehicle is more exacting in its demands of toilette attention and annual repainting or varnishing. Also these cost more. Still, I have heard it said that the advantage obtained by having, say, a Rolls-Royce waiting for one outside a patient's residence, does compensate for the extra expense! I am not ,however, speaking from experience.

## Practical Notes.

#### Treatment of Alopecia Areata.

M. Lortat-Jacob states that he has successfully employed carbon dioxide snow in the treatment not only of recent alopecia areata but of cases that had lasted for from three to seven years and had been resistant to all other methods of treatment. The blunt point of the carbon dioxide snow pencil is rubbed vigorously over the affected parts until freezing is complete. Three or four treatments within a period of three weeks were usually enough to start the growth of hair on the bald patches.—(Le Progrès Médical, June 13, 1925, p. 901.)

#### Value of Operative Treatment for Asthma.

M. C. Tod reports an investigation into the results of operations on the nose and throat in 342 cases of asthma, the operations including removal of tonsils and adenoids, turbinotomy, cauterization, submucous removal of the nasal septum, and the removal of nasal polypi. The conclusions arrived at are, first, that a cure of asthma by operation cannot be promised; the operation is performed to remove obstruction to nasal respiration or to drain a suppurating cavity, and if the asthma is cured the patient must give thanks. Where the airway is blocked or there is an obvious focus of infection, operation often greatly relieves the symptoms, and if the nose looks normal the cautery may be of value.—(Journal of Laryngology and Otology, September, 1925, p. 582.)

#### Indications for Mastoid Operation.

C. H. Smith points out that in a case of acute mastoid inflammation it is most important to decide when it is no longer safe to watch the development of the case and treat the patient symptomatically, but when an operation is necessary in order to conserve the patient's hearing and perhaps save his life. Several indications may be present; they are rarely found all at one time, but generally at least two of them are to be found. A post-auricular swelling usually means an abscess under the periosteum covering a mastoid; it could only come from one other source, namely, furunculosis of the auditory canal, and when that is excluded, the indication for a mastoid operation is positive. A drooping of the posterior superior angle of the bony external meatus is the next most positive indication; this sign can be made out with little difficulty, the marked narrowing of the inner end of the canal on the diseased side being in contrast to the more spacious and lofty canal of the normal ear. Persistent tenderness over the mastoid process is the next most reliable sign. Pain is another symptom which is of importance; it is generally worse at night, disturbing the patient's sleep. Profuse

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discharge after the first week of an acute otitis media is very suggestive of a mastoiditis which should be operated upon. Persistent discharge, which baffles all conservative efforts to dry it up, is an indication that some necrosis of the bone has occurred, and if we are concerned in saving the patient's hearing, the advisable measure is a mastoidectomy. Elevation of temperature would be an indication for operation if persistent; it is, however, a variable symptom. It is present, as a rule, in children, particularly in the evening; in adults it is the exception rather than the rule.—(Medical Journal and Record (New York), August 5, 1925, p. 128.)

#### Methods of Desensitization.

M. Dracoulides discusses methods of desensitization in the treatment of the phenomenon of anaphylaxis. One method is to give a small dose of the specific poison before the larger dose is administered; it is in this way that the urticarias caused by certain foodstuffs are avoided. Another method is the administration of peptone; it may be given in a cachet, one hour before food, as follows:—

R. Peptone - - - - g. 0 · 50 (grs. viiss.)

Magnes. oxid. - - - g. 0 · 25 (grs. iv)

Pulv. glycyrrhiz. - - q.s. (q.s.)

The injection of autogenous vaccines has been tried in some cases, as has also the administration of such salts as chloride of calcium, sodium, or barium. The following prescription may be found useful:—

R. Calc. chlorid. - - - - g. 20 (5v)
Syr. aurant. - - - - g. 20 (5v)
Syr. simpl. - - - g. 50 (3iss.)
Aq. chlorof. ad - - - g. 200 (3vi)

Mineral waters sometimes have a beneficial action, and hyposulphite of soda has particularly caused good results:—

R. Sod. hyposulphit. - - - g. 10 (5iiss.)
Syr. simpl. - - - g. 50 (5iss.)
Aq. destillat. - - - g. 50 (3iss.)

Other methods which have proved valuable are autoserotherapy and autohæmotherapy, and the intramuscular injection of milk that has been boiled for fifteen minutes, 5 to 10 c.cm. being given every two or three days.—(Journal des Praticiens, August 8, 1925, p. 523.)

#### Relationship of Tuberculosis to Fistula in Ano.

W. A. Fansler discusses the relationship of tuberculosis to fistula in ano, which, he says, has long been the subject of considerable discussion, the difference of opinion as to its extent varying from reports of 1.4 per cent. to 70 per cent. He comes to the conclusion that we are not justified in making the diagnosis of tuberculous fistula except by definite microscopic picture or in cases in which the lesion has the typical appearance which he describes. Considering all cases of fistula in ano, it is doubtful whether more than 2 or 3 per cent. are tuberculous in character. Tuberculosis is very rarely

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## PRACTICAL NOTES

The enthusiasm which greeted the introduction of the surgical treatment of epilepsy has not, in Dr. Boitzi's opinion, been maintained, and he finds operative treatment disappointing in its results. (Revue Médicale de la Suisse Romande, August 23, 1925, p. 625.)

# Preatment of Puerperal Infection with Arsenic Salts.

Professor Rivière, of Bordeaux, states that since January 1, 1921, he has treated all the cases of puerperal infection in his wards with salts of arsenic, and has not had a single death, while in 1923, with an approximately equal morbidity, he had five deaths, having treated the patients by other commonly accepted methods. M. Marbais, who previously employed this treatment, believed that it was ci value in syphilitic cases only, but this is apparently not the ence, as Professor Rivière has found it of equal value in non-syptalistic cases of puerperal infection. The method usually employed was subcutaneous injection of sulfamenol in 0.12 gram doses, repeated as required up to five or six injections, the dose sometimes being increased to 0.18 gram. In grave cases intravenous injection may be employed in preserence.—[Journal de Thérapeutique Français, August, 1925, p. 126.)

## Extra-Uterine Pregnancy.

J. Dauphin, in discussing the diagnosis of extra-uterine pregnancy, insists on the value of X-rays in making a precise diagnosis, and especially when employing pneumoperitoneum in conjunction with X-rays. As regards prognosis, many extra-uterine pregnancies have gone on to term, and not infrequently a living infant has resulted; the fatal cases have been those in which the diagnosis was made too late, during labour. Nevertheless, it is wise never to temporizo when the diagnosis of extra-uterine pregnancy has been made, but to open the abdomen immediately, for the menace of a severe bemorrhage is always threatening in these cases. The extent of the operative procedure will depend on the condition found .- (Le Progrès Médical, September 12, 1920, p. 1350.)

## Treatment of Tetanus with Glucose.

A. Jadassohn and Streit have treated two patients suffering from tetanus with injections of glucose, and found that this method of treatment gave excellent results. They then carried out experiments on rabbits inoculated with tetanus, and found that in these animals there was a marked reduction of the glycogen in the central nervous system, which, they believe, is the explanation of the success of injections of glucose in tetanus.—(Klinische Wochenschrift, July 30, 1925, p. 1498.)

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primary in fistula in ano. If it occurs at all it is not more than a small fraction of 1 per cent. It is probable that tuberculosis as such has a tendency towards the formation of rectal fistula, but this tendency is not so great as is generally supposed. The general condition of the patient is also a decided factor. It would seem that the formation of rectal fistulas in persons who are under weight is undoubtedly a definite warning of the presence of pulmonary tuberculosis or of a tendency towards its development.—(Journal of the American Medical Association, August 29, 1925, p. 671.)

#### Treatment of Gonorrhæa in Women.

F. A. Pemberton is of opinion that the treatment of gonorrhea in women demands patience and co-operation on the part of physician and patient, the attempt being to assist nature by gentle measures rather than to eradicate the disease by aggressive action. The patient is given three douches a day of boracic acid solution, or a weak solution of soap suds, to wash out the irritating discharge. Once a day the vagina is filled with two ounces of 1 per cent. mercurochrome solution by means of a long-tipped glass syringe, and the labia held together for two or three minutes, after which it is carefully dried out with cotton-wool pledgets through a speculum. As tenderness lessens the mercurochrome is also applied in the cervical canal with a swab. This treatment is kept up every day for ter to fourteen days. After that time the patient is treated three times a week by drying the vagina and cervical canal and having 2 per cent. mercurochrome applied with a swab. Treatment of the urethritis is carried out on the same lines, sandalwood oil in ter minim doses being also given internally.—(Boston Medical and Surgical Journal, August 27, 1925, p. 415.)

#### Treatment of Uterine Myomas.

B. Aschner says, in discussing the treatment of uterine myoma's that enucleation of the myomas and exact approximation of the peritoneum afterwards prevents post-operative ileus, and is preferable to the employment of X-rays and to removal of the uterus; even when the ovaries are allowed to remain. He insists on the importance to women of the maintenance, as long as possible, of the function of menstruation. Menorrhagia should, in his opinion, be treated by general methods only, the stomach and bowels being attended to, and, if necessary, venesection being employed.—(Wiener Klinische Wochenschrift, June 18, 1925, p. 699.)

#### Treatment of Epilepsy.

A. Boitzi presents an elaborate review of the treatment of epilepsy, and comes to the conclusion that the most valuable drugs are boricopotassium tartrate given in aqueous solution in doses of 0.75 to 1 gram in a child, and 3 to 4 grams per day in an adult, and luminal (which differs from veronal only by the substitution of a phenyl group for an ethyl group in the formula). Treatment by bromides must not, however, be neglected altogether, for each epileptic seems to have an affinity for one particular drug of those mentioned.

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#### PRACTICAL NOTES.

The enthusiasm which greeted the introduction of the surgical treatment of epilepsy has not, in Dr. Boitzi's opinion, been maintained, and he finds operative treatment disappointing in its results.—
(Revue Médicale de la Suisse Romande, August 25, 1925, p. 625.)

#### Treatment of Puerperal Infection with Arsenic Salts.

Professor Rivière, of Bordeaux, states that since January 1, 1924, he has treated all the cases of puerperal infection in his wards with salts of arsenic, and has not had a single death, while in 1923, with an approximately equal morbidity, he had five deaths, having treated the patients by other commonly accepted methods. M. Marbais, who previously employed this treatment, believed that it was of value in syphilitic cases only, but this is apparently not the case, as Professor Rivière has found it of equal value in non-syphilitic cases of puerperal infection. The method usually employed was subcutaneous injection of sulfarsenol in 0·12 gram doses, repeated as required up to five or six injections, the dose sometimes being increased to 0·18 gram. In grave cases intravenous injection may be employed in preference.—(Journal de Thérapeutique Français, August, 1925, p. 126.)

#### Extra-Uterine Pregnancy.

J. Dauphin, in discussing the diagnosis of extra-uterine pregnancy, insists on the value of X-rays in making a precise diagnosis, and especially when employing pneumoperitoneum in conjunction with X-rays. As regards prognosis, many extra-uterine pregnancies have gone on to term, and not infrequently a living infant has resulted; the fatal cases have been those in which the diagnosis was made too late, during labour. Nevertheless, it is wise never to temporize when the diagnosis of extra-uterine pregnancy has been made, but to open the abdomen immediately, for the menace of a severe hæmorrhage is always threatening in these cases. The extent of the operative procedure will depend on the condition found.—(Le Progrès Médical, September 12, 192, p. 1350.)

#### Treatment of Tetanus with Glucose.

A. Jadassohn and Streit have treated two patients suffering from tetanus with injections of glucose, and found that this method of treatment gave excellent results. They then carried out experiments on rabbits inoculated with tetanus, and found that in these animals there was a marked reduction of the glycogen in the central nervous system, which, they believe, is the explanation of the success of injections of glucose in tetanus.—(Klinische Wochenschrift, July 30, 1925, p. 1498.)

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## Reviews of Books.

Osler's Principles and Practice of Medicine. Revised by Thomas McCrae, M.D., F.R.C.P. Tenth edition. Pp. 1234 and xxxii. 16 charts and 23 illustrations. London: Appleton & Co. 30s. net.

The new tenth edition of the late Sir William Osler's well-known text-book of medicine has been thoroughly revised by his former associate, Professor Thomas McCrae, of Philadelphia. Although the new edition has been completely reset it retains the features characteristic of its original author, and the additions and alterations made have obviously been very carefully considered, mere theorizing being omitted, and new material only included which is of established value. Among the subjects which are new or have been reconsidered are scarlet fever, tularæmia, erythema nodosum, epidemic diaphragmatic pleurodynia, carbon-monoxide poisoning, sea sickness, tracheo-bronchitis, hypertension, hypotension, selerotic thyroiditis, erythrædema, myotonia atrophica. It is hardly necessary to criticize, at this time of day, what has proved to be one of the most popular medical text-books ever published.

Differential Diagnosis of Internal Medicine. By M. MATTHES, M.D., Konigsberg. Authorized translation of fourth German edition, with extensive additions by I. W. Held and M. H. Gross. Pp. 908, 176 illustrations. London: J. and A. Churchill. 42s. net.

The value of this book is that it presents, in a concentrated and practical way, the results of Professor Matthes's own experience, and gives at the same time a summary of recent literature, including English and American, on the subject. Although rather a large book, it is very readable, and may be recommended both to students and practitioners.

Bacteria in Relation to Man. By Jean Broadhurst, Ph.D., Associate Professor of Biology, Teachers' College, Columbia University. Pp. xvi and 306. London: J. B. Lippincott Co. 12s. 6d. net.

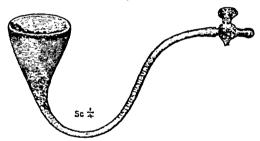
This book is essentially a laboratory outline of micro-biology, suited to the requirements of those doing a science course. Starting with the optics of the microscope, the green plant is first considered, and then the cell. Next the moulds, yeasts, bacteria, and protozoa are dealt with. Bacteriological methods are then described, and the second half of the book includes economic bacteriology—air, water, milk, the soil, etc. The book is well produced and excellently illustrated, and as a laboratory course for science students should be found useful.

# Preparations, Inventions, Etc.

MODIFICATION OF DE RIBES'S BAG.

(London: Messrs. Allen & Hanburys, Ltd., 48 Wigmore Street, W.I.)

Dr. J. E. Hepper, of Frimley, Surrey, has devised a modification of De Ribes's bag, the object of which is to take the place of the membranes in those cases where they rupture early in labour. The bag, when folded, can be introduced into the uterus, when the cervix is the size of a shilling, by means of long ovum forceps. It is pear-shaped,  $2\frac{1}{4}$  in. in diameter at the broad end, and 4 in. long, and is made of rubber of medium thickness. The thin end of the bag is attached to a rubber tube, the other end of which is fitted



with a tap. It is important that all air should be expelled before introduction, and that a partial vacuum should be ensured by turning off the stopcock. When the bag has been introduced in the manner described, a Higginson's syringe should be fitted to the tap and the bag partially filled with water; one injection is sufficient. The bag remains in position until the cervix is fully dilated, the number of hours in labour being thus considerably reduced. By a special device the broad end of the bag, when filled, is concave, so that it does not displace the fœtal head. The pressure also is evenly distributed outwards against the inner side of the cervix, thus producing more speedy dilatation.

#### BOROCAINE.

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Borocaine is the name given to a new local anæsthetic, composed of the borate of ethocaine (diethyl-amino-ethyl-para-amino-benzoate). It is a stable, white crystalline powder, freely soluble in cold water, Ringer's solution, and normal saline solution. It acts rapidly both as a surface and hypodermic anæsthetic; it is non-toxic, non-irritant, keeps well, and its use is not restricted by

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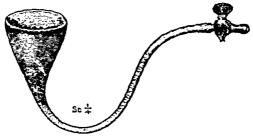
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the regulations made under the Dangerous Drugs Act. It may therefore replace cocaine effectively in minor operations, particularly on the eye, nose, and throat, urethra, and in dentistry. It is supplied in tablets containing either 0.02 gram or 0.1 gram, combined with adrenalin, and containing also a small quantity of sodium chloride and anhydrous glucose, to make, when dissolved, an isotonic solution.

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- BINDLOSS, E. F., L.R.C.P.Lond., M.R.C.S., appointed Poor-law Medical Officer for Farnborough, Hants.
- BINKS, H. B., M.B., Ch.B.Edin., D.P.H.Camb., appointed Assistant School Medical Inspector, Staffordshire Education Committee.
- BUTLER, H. O'NEIL, L.D.S., R.C.S., appointed Assistant Dental Surgeon to Royal Northern Hospital.
- CALDWELL, J., M.B., Ch.B.Glaf., appointed Senior Resident House-Physician to the Royal Alexandra Infirmary, Paisley.
- CHAMBERLAIN, E. NOBLE, M.D. M.R.C.P.Lond., appointed Honorary Assistant Physician, Royal Southern Hospital, Liverpool,
- CRAIB, M., M.D., Ch.B., appointed Resident Medical Officer for Frere Hospital, East London, South Africa.
- DOW. D. R., M.D., Ch.B. St. And., D.P.H., appointed to the Chair of Anatomy, University College, Dondee.
- ECCLESTON, C., M.B., Ch.B., appointed House-Surgeon (Orthopadic Department) to Salford Royal Hospital.
- FITTON, GEOFFREY K., M.B., Ch.B., appointed House-Surgeon to the Dewsbury and District General Infirmary.
- GIRI, D. V., L.R.C.P., & S.Edin., L.R.F.P.S.Glas., D.O.Oxf., appointed Honorary Surgeon to the Royal Eye Hospital, Eastbourne.
- GUNN, D., M.B., Ch.B.Edin., appointed Resident House-Surgeon to the Royal Alexandra Infirmary, Paisley.
- HARRISON, L. F. A., M.R.C.S., L.R.C.P., appointed Resident Medical Officer to the General Lying-in Hospital, York Road, Lambeth.
- HEWAT, A. F., M.B., Ch.B.Edin., F.R.C.P.Edin., appointed Acting Physician to the Chalmers Hospital.
- HUNTER, JOHN B., F.R.C.S., Eng. appointed Surgeon to the Royal Norther Hospital, Holloway.
- JAFFE, H., M.R.C.S., L.R.C.P pointed Resident Medical Officer t Royal Hospital.
- JONES, H., L.R.C.P.Lond., appointed Certifying Surge Factory and Workshop Act. District of the County of C

- LANKESTER, A. L., M.R.C.S., L.R.C.P.Lond., appointed Senior Resident Medical Officer to Queen Charlotte's Maternity Hospital,
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- MUIRHEAD, JANET L. A., M.B., Ch.B. St. And., appointed Tuberculosis Officer for the Burgh of Arbroath.
- NELKEN, G.J. Y., B.S. Lond., appointed Assistant Resident Medical Officer to Queen Charlotte's Maternity Hospital.
- O'CONNOR, BRYAN V., M.R.C.S. Eng., L.R.C.P.Lond., appointed Resident Medical Officer, General Hospital, jersey.
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- SHOOLBREAD, THOMAS B., M.B., C.M.Edin., appointed Resident Surgeon to the Bitmingham General Dispensary, Moseley Road.
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- TROUP, ARTHUR G., M.D.Aberd., D.P.H., appointed Medical Superintendent, Willesden Municipal Hospital.
- WHYTE, ANGUS HEDLEY, M.B., B.S.Durh., F.R.C.S., appointed Honorary Assistant Surgeon, Royal Victoria Infirmary, Newcastle-upon-Tyne.
- WILSON, EDWARD A., M.D.Edin., appointed Junior Assistant Medical Officer, Chesbire County Mental Hospital, Parkside, Macclesfield,
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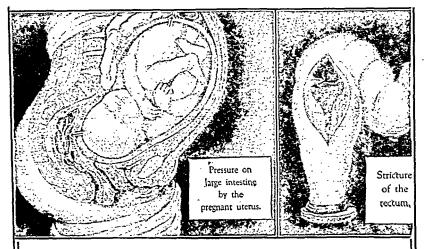


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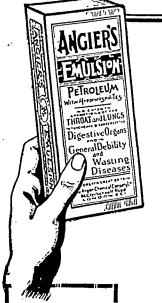
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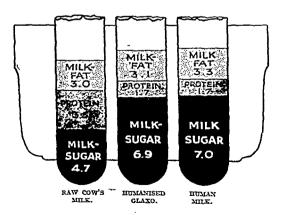
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### Intestina isintection

No. 8

#### ALIMENTARY TOXÆMIA AND **ENDOCRINE** INSUFFICIENCY

A writer in The Lancet (May 13th, 1922) has directed attention to an apparent connection between alimentary toxamia and endocrine insufficiency, particularly of the thyroid gland. Many cases of "ill-health," neurasthenia and others, were benefited by the administration of thyroid extract.

He goes on to remark that there seems to be a close connection between endocrine insufficiency and poisoning from intestinal absorption, and notes the beneficial results obtained by the use of intestinal antiseptics in addition in these cases.

He seems to be unaware that the best of all intestinal antiseptics is KEROL. In endocrine insufficiency, therefore, use KEROL in addition to other measures.

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#### Laryngeal Cough



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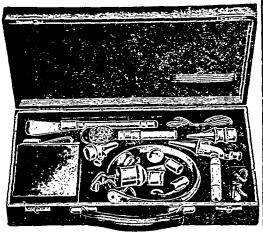
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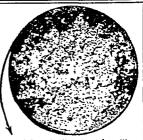
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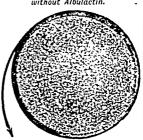
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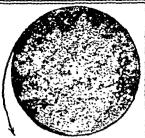
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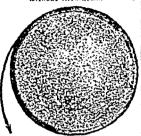
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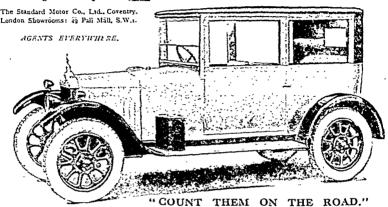
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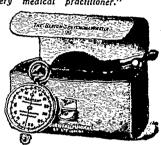
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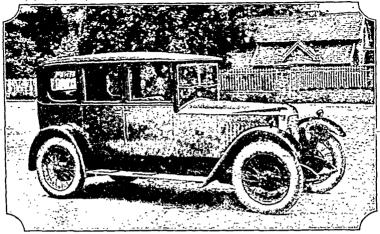
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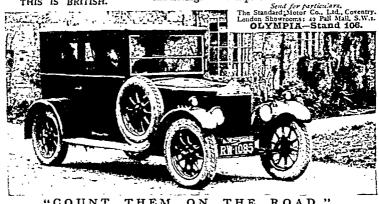
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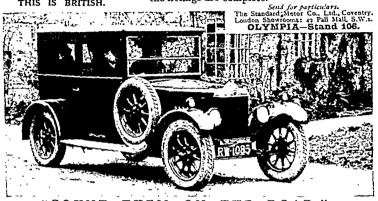
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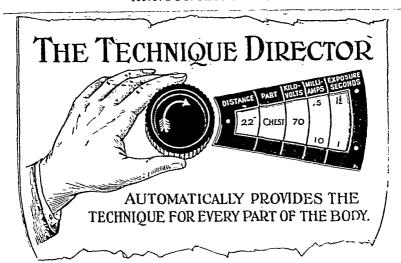
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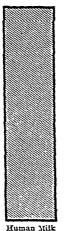
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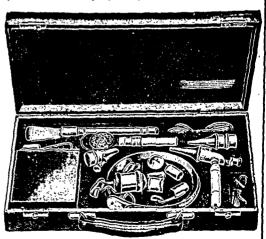
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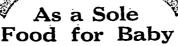
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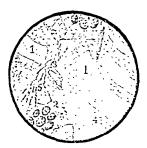
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Appearance of Feces after Catharsis. (Note unassimilated foods carried into the colon) (1) Large undigested muscle fibres. (2) Undigested starch granules. (3) Stone cell. (4) Connective tissue. (5) Fatty acid crystals.



Feces in typical case of Uncomplicated Constipation after using Nujol.

- (1) Vegetable residue. (2) Muscle fibres. (3) Digested potato cell. (4) Stone cell. (5) Fat droplets. (6) Mineral oil globules.
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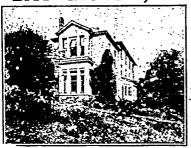
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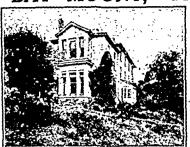
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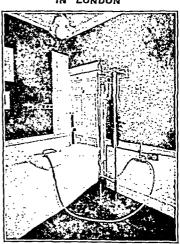
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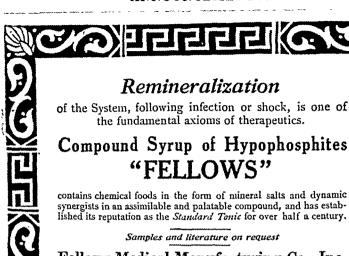
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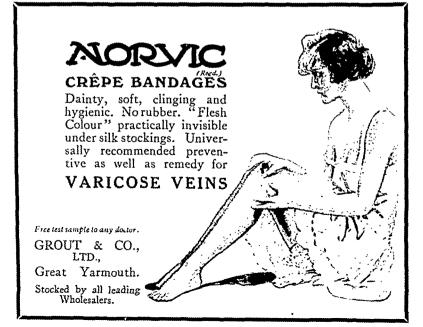
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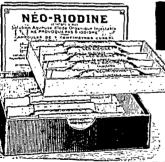
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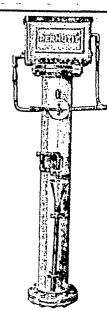
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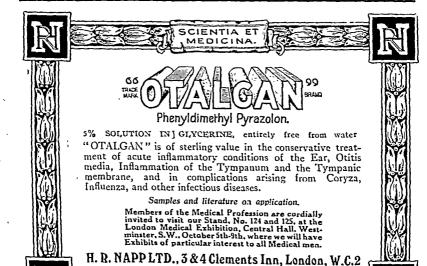
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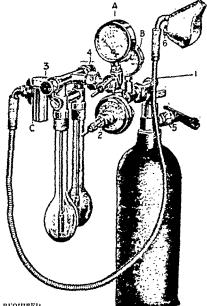
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# PHYLLOSAN

THE researches relating to the close chemical relationship between chlorophyll and hæmoglobin were described in full by Dr. M. O. Forster in his presidential address to the Section on Chemistry at the recent meeting of the British Association in Edinburgh. They are also dealt with in the work by Dr. David Burns, entitled "An Introduction to Biophysics" (Churchill), by Dr. A. White Robertson in "Studies in Electro-pathology" (Routledge), and in Professor B. Moore's "Biochemistry" (Arnold), "Anæmia and its Modern Treatments," A. W. Fuller, M.D. (Lewis).

PROF. E. BUERGI, of the University of Berne, has shown that phylloporphyrin (C₁₆H₁₈N₂O), a decomposition product of chlorophyll, is closely related in chemical structure to hæmatoporphyrin (C₁₆H₁₈N₂O₃) an iron-free derivative of hæmoglobin; also that a hæmopyrrole (C₆H₁₃N) can be prepared from both. Buergi has isolated pure chlorophyll in the form of an extract called PHYLLOSAN. Extensive clinical experiments prove beyond a doubt the accuracy of his theory, for results obtained with Phyllosan show that its use in Anæmic and Chlorotic conditions is in every way superior to, and its action quicker than, preparations of iron, etc.

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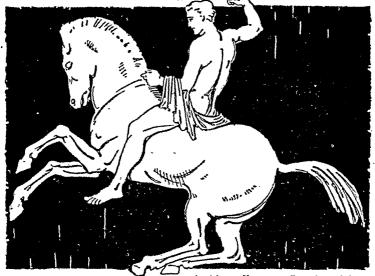
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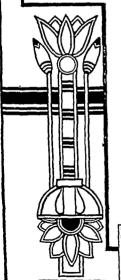
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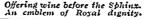
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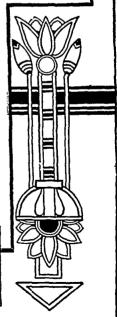
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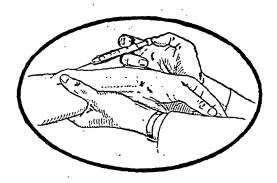
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OCTOBER 1925

# The Early Diagnosis of Disease of the Spinal Cord.

By SIR FREDERICK MOTT, K.B.E., M.D., F.R.S., F.R.C.P., Hon. LL.D.

Honorary Director of Research and Lecturer on Psychology, Birmingham University; Consulting Physician, Charing Cross Hospital; formerly Director, Pathological Laboratories, Maudsley Hospital London County Council.

HEN a patient comes to the doctor the first question to decide in making a diagnosis is this: Am I dealing with a case of functional or organic disease, or a combination of the two?

FUNCTIONAL DISEASE: HYSTERICAL SIGNS AND SYMPTOMS SIMULATING DISEASE OF THE SPINAL CORD.

A careful history of the onset and progress of the signs and symptoms should be made, noticing the mental attitude and behaviour of the patient; due regard being given to the fact that in hysterical cases there is always a danger of suggesting symptoms to the patient, especially in respect to sensory disturbances.

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The onset is usually sudden, and the disability varies with the patient's emotional state, degree of attention, and the effects of external influences. After you have made a careful and methodical examination of the superficial and deep reflexes and found them all normal, you are justified in concluding that the paralysis, contracture, or inability to stand or walk (astasia, abasia), which may even have existed for months or years, is the result of auto-suggestion or hetero-suggestion, and you can then with confidence assure your patient that he or she can be cured. It may be noted that there is never unilateral increase of the deep reflexes, never genuine clonus, never a plantar extensor response (Babinski). Hysterical hemiplegia leaves the tongue and face unaffected. In these functional cases, moreover, even after prolonged disuse of the limbs, there is little or no wasting, and the muscles all respond normally to electrical stimulation. I would remind the reader that in longstanding functional cases there is acrocyanosis and coldness of the feet, so that no response occurs to stimulus of the sole. If the foot be warmed the response can be obtained. The recognition of functional sensory disabilities simulating spinal cord disease is easy: the superficial sensibility to pain, heat and cold, and touch, is lost completely; there is no dissociation, neither the anæsthesia nor the pains complained of conform to the anatomical distribution of spinal roots or peripheral nerves. In the limbs the superficial anæsthesia takes the form of a stocking or gauntlet, and can easily be removed by suggestion, the restoration of sensibility being from above downwards. The secret of success in the treatment of these functional cases is faith; consequently, in the first treatment you must not leave the patient until you have established that by bettering or curing the disability. It may take minutes, it may take hours. There are many cases of organic

### DISEASE OF THE SPINAL CORD

disease of the spinal cord with a large halo of functional disturbance, which can be removed by various methods of suggestion, by re-education, and many other forms of encouragement.

### NEURASTHENIA SIMULATING SPINAL DISEASE.

Pain is one of the most constant of symptoms in all forms of disease, and when the patient comes complaining of pain, the natural thing to do is to see whether there are any objective signs to account for it in the region where it is felt. There may or there may not be signs. For example, a pain in the spine was a very frequent occurrence in war psychoneurosis; it also occurs in some forms of neurasthenia and hypochondriasis, especially in persons who have read of locomotor ataxy and spinal disease occurring as a result of venereal infection. In my experience only a small percentage of cases complaining of pain in the spine suffer from disease of the spinal cord. Thus, a patient may come complaining of pain and tenderness in the spine, which he says has caused weakness or even loss of power in the legs. You test all the reflexes and find they are normal. There is no anæsthesia or analgesia, no girdle pain, and no sphincter trouble. There are signs and symptoms together with a history of nervous apprehension and anxiety. You find, on examination, that he can bend the spine forwards and backwards and it can be rotated without any pain. As you can find no visible signs of spinal disease, nor any evidence thereof by clinical signs, you may conclude that the symptoms complained of are subjective and of psychic origin. As they have probably arisen by suggestion it will very likely be found that the site of the pain complained of can be altered in its situation by suggestion. It is well, therefore, to ask the patient to tell you exactly the tender spot on percussion of the spine, and to mark the spot with a blue

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pencil. It will often be noticed that he does not localize the same spot on successive trials. Again, it will be found that the tender spot can be shifted higher or lower by suggestion. If, however, upon examination you find a localized tenderness and pain on pressure of the spine which cannot be shifted by suggestion, even in the absence of any deformity, and although a neuropathic tendency is obvious, you should always consider the possibility of organic disease, especially if there is evidence of pain on movement of the spine in the various directions possible. Even if there be absence of any visible sign, such as prominence of a spinous process, or redness, spinal disease must be thought of. The exact situation of the tenderness should be noted, and the character and localization of pains or abnormal sensations should be investigated, for this will give important information regarding the diagnosis of the anatomical structures affected. Localized pain and tenderness on pressure of the spine, combined with a localization of pain or paræsthesia in a skin area, corresponding to a segment or segments of the spinal cord, are of great diagnostic importance in caries and new growth of the spine, tumours, aneurysm eroding the spine, and extramedullary tumours affecting the posterior roots. An X-ray examination will help to confirm the diagnosis, localize the disease, and indicate the treatment. When pain corresponding to a segmental distribution on the limbs or trunk occurs, it is usually due to irritation of the spinal ganglia or sensory roots as they pass through the intervertebral foramina to the cord by a localized or general meningitis.

### CHARACTER OF PAIN DUE TO SPINAL CORD DISEASE.

The pain due to early spinal cord disease may be of a neuralgic character. It may vary in severity and from time to time according to the temperament and general health of the individual. It may be described by the patient as lancinating, boring, cutting, tearing, burning, and so severe may it be as to cause the patient to cry out. It may be continuous, dull, and contusive, with paroxysmal crises of acute pain. It is differentiated from true neuralgia and neuritis by its segmental topographical distribution. In neuralgia there are anatomical points, compression of which gives rise to pain. Pains of a neuralgic type and especially severe, however, arise as a result of compression or irritation of the spinal roots or of the brachial, lumbar, or sacral plexuses. These pains are called pseudo-neuralgic, and are met with at the commencement of cases of caries of the spine, but occasionally in aneurysm of the descending aorta, in the paraplegia dolorosa of cancer, and particularly in cases of irritation of the spinal roots from localized and general meningitis.

The pain of general or local meningitis is frequently associated with general or local muscular spasm and rigidity. This is very obvious when the cervical region is involved. In cervical caries there is local tenderness and rigidity, and if we see a patient supporting his head with both hands, owing to a pain in the neck, this is almost a sure indication that he is suffering from disease of the cervical vertebræ.

Sooner or later these root pains will be associated with objective sensory disturbances disposed in bands on the trunk and long strips on the limbs of hyperæsthesia, of anæsthesia or analgesia. Whereas pressure on nerve trunks in peripheral neuritis causes lively pains, this is not so obvious when a nerve is pressed in radiculitis (spinal root inflammation). But severe pain may be caused by sneezing, coughing, blowing the nose, or defæcation.

The cause of root pain is a local or general meningitis affecting the posterior sensory roots in some part of their course from the intervertebral foramina to the spinal cord. One of the commonest

causes of root pains is a localized or diffuse meningitis. The specific cause of the meningitis can, in a great many cases, be ascertained by lumbar puncture and examination of the cerebro-spinal fluid. The result will in most cases decide the treatment.

Severe neuralgic pain with a spinal segmental distribution does not always result in symptoms pointing to disease of the spinal cord, and the inflammatory process may affect only the posterior spinal ganglion. When this structure is acutely inflamed, "herpes zoster" appears in the area of distribution of the sensory nerve fibres issuing from the ganglion. The appearance of the eruption is usually followed by a cessation of pain. Intercostal neuralgia and pleurodynia are frequently erroneously diagnosed in early rachialgia due to organic disease affecting spinal roots.

# SYPHILITIC MENINGITIS A FREQUENT CAUSE OF ROOT IRRITATION.

Syphilis is the cause of a great number of cases of spinal cord disease commencing with symptoms of local root irritation followed by a generalized spinal meningitis (often cerebro-spinal meningitis). In addition to an abundant lymphocytosis of the cerebro-spinal fluid, a positive Wassermann reaction of the blood and fluid is obtainable. The lumbo-sacral region is a frequent seat of root pain, but it may occur in the dorsal or cervical region in syphilitic disease of the spinal cord. The first symptom of tabes may be pains of a lightning character, which are due to irritation of the rootlets of the posterior spinal neurone at their entry into the cord. The pains, being due to irritation of the rootlets and not to whole roots, are stabbing and like an electric needle run into the leg-not like sciatic pains or the root pains of syphilitic meningitis.

PAINS IN NEURITIS AND TABES.

Severe shooting pains in the limbs, especially the 238

lower limbs, followed by objective signs of sensory disturbances, such as hyperæsthesia upon pressure of the calves, associated with anæsthesia to light touch and analgesia, occur in peripheral neuritis, but the history of the case and the distribution of the sensory disturbance will enable a differentiation between this and spinal cord disease to be made. must be remembered that in some cases the pains in peripheral neuritis may be of a lightning character, and thereby simulate tabes, especially if there are ataxic symptoms and absence of the knee and Achilles jerks, but there is usually an associated motor affection in the form of paresis or paralysis, associated with wasting of the muscles. The pupils are normal, and the Wassermann reaction is negative. The lightning pains of tabes may have existed for years before the patient has consulted a doctor, believing that they were due to rheumatism, muscular rheumatism, or neuritis. But the pains of tabes do not shoot up and down the limb, they are sharp, jabbing, "like an electric needle." I have seen cases of tabes in the pre-ataxic stage where the deep reflexes have disappeared, first on one side and then on the other, after crises of pains. It is rare that there is not some pupillary affection in this disease. Unequal pupils, irregular pupils, inactive or sluggish to light and active to accommodationthe Argyll-Robertson pupil—in conjunction with lightning pains in the limbs, are sufficient evidence to diagnose locomotor ataxy in the pre-ataxic stage. Cases of tabes occur where the knee jerks are present, but the Achilles jerks are absent. These cases often show loss of bone sensibility on the foot to the vibrations of a tuning-fork.

VISCERAL CRISES AN EARLY SYMPTOM IN TABES.

Next to lightning pains, bladder troubles are among the earliest and most constant symptoms of tabes; they

are not severe, and it is only as the result of inquiry, as a rule, that the patient in relating his symptoms mentions difficulties in starting micturition or holding Bladder crises have been described. They his water. consist of violent pains, which occur in the lower part of the belly, radiating to the inner side of the thigh. patients have an urgent desire to micturate, but are unable to do so; they experience the most severe burning and cutting pains in the urethra. These crises may last a few or many hours. Renal crises have also been described. These crises may simulate passage of a stone or gravel in a patient. Gastric crises, again, are not infrequently the earliest symptom of the disease, and the attacks of pain and vomiting may be the cause for which the patient seeks advice. Rectal and intestinal crises may also occur, and are among the early symptoms of tabes. The patients complain of tenesmus and urgent desire to go to stool, of severe pain in the back passage like the introduction of a hot iron. Laryngeal crises may be an early symptom.

The association of thoracic anæsthesia with visceral crises gives an anatomical explanation of their causation; the afferent visceral sympathetic nerves terminate in the posterior cornua of the spinal cord segments corresponding to the seat of the pain in the skin and the anæsthesia, the inflammatory process that irritates the posterior sensory roots innervating the skin irritates also the afferent visceral fibres. Again, painless spontaneous dislocation or fracture may be the first event to bring the patient under medical or surgical observation. Upon inquiry it will generally be found that these patients have had lightning pains which they attributed to rheumatism. Impotence or satyriasis may be an early symptom of tabes. The visceral as well as the somatic symptoms depend upon the anatomical seat of the irritative and destructive morbid process.

### DISEASE OF THE SPINAL CORD

In all these early manifestations of tabes which bring the patient to the doctor, other signs or symptoms will be revealed by careful examination, the most frequent and important diagnostic clinical sign being the Argyll-Robertson pupil. It must be remembered that although syphilis is the essential cause of tabes, yet every case does not give a positive Wassermann reaction of the blood and fluid.

### EARLY SYMPTOMS OF MENINGO-MYELITIS.

A girdle pain is often an early symptom of a focal meningitis or meningo-myelitis of slow and progressive evolution, and marks the commencement of the affection. This early symptom of root affection is very common in syphilitic disease of the spinal cord. The recognition of inflammatory root symptoms—namely, paræsthesia and girdle pains in syphilitic disease of the spinal cordis a matter of great importance as regards early active treatment being successfully carried out before the inflammation has had time to spread to the spinal cord itself, producing thereby a transverse myelitis, which destroys the nervous structures and leads to ascending and descending degeneration of the tracts conveying sensory and motor impulses to and from the brain. Once this degeneration has occurred, a permanent spastic paraplegia is installed, and no amount of specific treatment can restore the destroyed nerve fibres. Syphilitic meningo-myelitis is a frequent cause of paraplegia in young male adults, and root pains and dysæsthesia are the earliest warning symptoms. treated in the early stage, the results are surprisingly satisfactory. Jonathan Hutchinson pointed out that one half of the cases of syphilitic paraplegia occurred within the first eighteen months after infection. These facts show how valuable is an examination of the cerebro-spinal fluid as an aid to diagnosis and subsequent treatment in all cases presenting possible sym-

ptoms of spinal cord disease. A lymphocytosis points to either syphilis or tubercle, but a differential diagnosis is easily effected in a doubtful case by the results of a Wassermann reaction of the blood and spinal fluid, and attention to the history of the case, the clinical evidence, and the result of antisyphilitic treatment.

INFLAMMATORY CONDITIONS AND PRESSURE ON SPINAL ROOTS NOT THE ONLY CAUSE OF ABNORMAL SENSATIONS.

In addition to inflammatory conditions and pressure on spinal roots, the causes of abnormal sensations include the following:—

- 1. Local transitory modifications of the circulation such as are met with in Raynaud's disease and erythromelalgia due to vasomotor spasm. Also arterial circulatory disturbances in the limbs occasioned by atheroma, arterio-sclerosis, and endarteritis.
  - 2. Reaction to cold.
  - 3. Neuritis of traumatic, toxic, or infective origin.
- 4. Symptoms of paræsthesia, especially of the extremities (acroparasthesia), are met with in neurasthenics.

# ABNORMAL SENSATIONS AN EARLY SYMPTOM OF SPINAL CORD DISEASE.

Many of the conditions which give rise to neuralgic pains give rise to abnormal sensations of numbness, tingling, "pins and needles"—that is, in the prodromal periods of vertebral disease, intramedullary and extramedullary tumour, dysæsthesia may even precede the pain in these affections. Such abnormal sensations also may be the first symptom in chronic spinal meningitis, acute or chronic myelitis, anterior poliomyelitis, myelomalacia, or thrombotic softening of the spinal cord,

### DISEASE OF THE SPINAL CORD

transverse syphilitic meningo-myelitis and disseminated sclerosis. Therefore, when these symptoms are complained of, even in the absence at first of objective signs of disease, it is imperative carefully to investigate the probable causation, look for objective sensory disturbances, examine the condition of the reflexes, and note if there is any evidence of motor weakness. Lumbar puncture and examination of the cerebrospinal fluid may aid in making a diagnosis in many of these cases of myelitis.

#### OBJECTIVE DISORDERS OF SENSIBILITY.

Total anæsthesia in disease of the spinal cord occurs only in cases where there is a complete transverse lesion, such as occurs in fracture dislocation, bullet wound, or severe meningo-myelitis caused by compression or disease; the prognosis is always grave. In meningo-myelitis the subjective sensory symptoms previously described and hyperæsthesia precede the anæsthesia which subsequently arises in all cases of focal myelitis or diffuse myelitis.

Dissociated anæsthesia is more frequent and more important as a diagnostic sign than total anæsthesia in the localization of lesions. By dissociation I mean that all modes of sensation are not affected, or not affected to an equal degree. Superficial sensibility to a light touch with a wisp of cotton-wool, to pricking, and to heat and cold may coexist with unimpaired deep sensibility. An anæsthesia to light touch may be associated with the preservation of pain sensibility, and even so exaggerated that touch sensations are only recognizable as painful (anæsthesia dolorosa). This sensory dissociation may be met with in peripheral neuritis and in cases of compression and irritation of roots. In syringomyelia and hæmatomyelia, where the grey matter is disorganized, pain, heat and cold sensations are not felt, but tactile sensations are. Sensory

dissociation may be associated with localized wasting of muscles in syringomyelia.

SENSORY PHENOMENA TRANSITORY OR ABSENT IN SOME DISEASES OF THE SPINAL CORD.

There are certain diseases of the spinal cord in which sensory phenomena are transitory or absent. In acute ascending *Landry's paralysis* there is little or no impairment of sensation, bedsores do not form, and there is no change in the electrical excitability of the muscles.

Anterior poliomyelitis, an infective disease with an acute onset ushered in by fever, malaise (frequently vomiting), is associated with numbness, tingling, and "pins and needles" in the limbs, followed in a few hours by a flaccid paralysis of the muscles, proceeding to wasting, with reaction of degeneration and permanent atrophy of some groups. The anatomical lesion is an inflammation affecting especially the anterior horns; the spinal motor neurons are damaged or destroyed, consequently the motor fibres degenerate and with them the muscles they innervate. The posterior spinal ganglia—the trophic centre of the sensory fibres—is not involved; consequently they do not degenerate, and the sensory symptoms are therefore only transitory.

Progressive muscular atrophy is a progressive and insidious decay and destruction of the spinal motor neurons, and as they degenerate and die, the muscle fibres, which they innervate, degenerate and undergo atrophy. The characteristic fibrillary twitchings in the degenerating muscles is evidence of the increased irritability of the degenerating fibres. There is no sensory disturbance of function in this disease, as the sensory neurons are not affected.

Amyotrophic lateral sclerosis is a degenerative disease, not only of the spinal motor neurons innervating the muscles, but also of the cortico-spinal neurons which

### DISEASE OF THE SPINAL CORD

carry voluntary impulses from the brain by the pyramidal tracts to the spinal motor neurons which they control. In this disease also there is no sensory trouble. In amyotrophic lateral sclerosis there is a wasting of muscles associated with exaggerated deep reflexes, patellar and ankle clonus and plantar extensor response; these form the early symptoms of the disease. Disseminated sclerosis.—This disease is easy of

diagnosis when such cerebral symptoms are present as intention tremors, staccato speech, nystagmus, and optic atrophy, but when only spinal cord symptoms are in evidence it is very apt to be mistaken for functional disease. Not infrequently numbness, tingling, "pins and needles" in the limbs marks the onset of the disease: this is followed in some cases by temporary anæsthesia. The patient may then suffer with a spastic condition of the legs, associated with a certain amount of paralysis or paresis, inco-ordination and difficulty or awkwardness in gait and station. When these symptoms are accompanied—as they often are in young women by emotional symptoms, an erroneous diagnosis of hysteria may be made, especially if a systematic examination of the superficial and deep reflexes is not Absence of the epigastric and abdominal reflexes on one or both sides, exaggeration of the kneejerks, patellar clonus, ankle clonus, and-most important-plantar extensor response of the big toe, with fanning of the other toes, paresis, loss of sense of position, and diminution of bone sensibility show that there is a lesion involving the pyramidal tracts and the posterior column. The superficial sensibility is usually unaffected.

THE IMPORTANCE OF ANATOMICAL LOCALIZATION OF THE LESION IN DIAGNOSIS AND PROGNOSIS.

The diagnosis of the exact localization of disease of the spinal cord is of great importance from two points

of view-namely, in prognosis and in the rare cases where surgical interference is contemplated. prognosis is always most grave where there is clinical evidence of extensive diffuse myelitis and where the lesion affects certain regions of the spinal cord owing to dangerous symptoms and complications arising. Thus lesions in the upper cervical region may affect the phrenic neurones. Again a lesion in which the symptoms point to a complete transverse myelitis is evident by an absolute loss of sensibility below the lesion, paraplegia and loss of control over the sphincters. In such cases cystitis and secondary infective nephritis are liable to occur; also large sacral bedsores, unless great care be taken by the doctor and nurse. the lesion affects the lumbo-sacral region and the lower motor neurones are destroyed there is, in addition, atrophy with reaction of degeneration of the muscles of the lower extremities; the sphincter troubles are more serious, and bedsores are almost sure to occur in spite of careful treatment and nursing.

# ANATOMICAL LOCALIZATION IN RELATION TO SURGICAL INTERFERENCE.

The earliest symptom noticed by the patient in extramedullary tumour is pain or paræsthesia, generally on one side, and only in the area of distribution of a root, and associated with hyperæsthesia of the corresponding skin area. As the tumour increases in size it produces sooner or later a unilateral compression of the spinal cord of the same side, and this causes an interruption of sensory and motor tracts. The existence of definite root irritation prior to symptoms of pressure serves as a means of localization, and affords evidence of its extramedullary situation. Now, it frequently happens in these cases that a sensory dissociation known as the Brown-Séquard phenomenon is found—namely, there is loss of tactile kinæsthetic sense on the same

### DISEASE OF THE SPINAL CORD

side as the lesion. This can be explained on anatomical grounds. The fibres conveying sensations of heat and cold and pain decussate to the opposite side almost immediately in the grey matter, whereas the fibres conveying tactile kinæsthetic impressions do not decussate until they reach the medulla. The existence of compression of the pyramidal tract fibres is shown by weakness or loss of voluntary power in the limb, dragging of the foot, increase of deep reflexes, ankle clonus, and plantar extensor response. If unrelieved the pressure increases as the tumour grows, and a complete These cases of slow-growing paraplegia results. benign extramedullary tumour may be easily missed in the early stages, and the case regarded as functional, unless a very careful and methodical examination is made.

#### CONCLUSION.

From what I have said it is clearly necessary to decide by examination, first, whether the case is functional or organic; secondly, if organic, in order to form a correct judgment regarding prognosis and treatment, it is essential to diagnose the pathological nature of the lesion and its anatomical situation.

Finally, I would emphasize that more mistakes are made from not looking than from not knowing.

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study. Under this heading may be included the problems associated with sociology, psychology, and bio-chemistry.

In the past, certain nervous and mental disorders were classified and labelled with terminology which appeared to be appropriate in relation to the most prominent etiological factor. By this, we may allude to the terms adolescent, puerperal, climacteric, and senile insanities.

From a biological point of view much can be pronounced in favour of this classification, as it brought into conspicuous view, for etiological consideration, the critical or physiological epoch at which the particular mental disorder occurred. However, at the present day our knowledge of psychological types and underlying mental mechanisms enable us to view and analyse the neuroses, psycho-neuroses, and psychoses from a more definite and scientific standpoint. Even with this modern equipment one is often apt to focus too narrowly, and thus unfortunately lose sight of the wider and all-embracing factors of biological import.

Before one can fully appreciate the study of the science of mind and conduct and their disorders, one must intelligently review data from all sources which may have a possible bearing on the subject. First of all, in dealing with fundamentals, we know that every child that is born into this world of difficulties has the right to inherit a sound organization. Furthermore, we must agree that it has a just claim to adequate nurture and education. Should these rightful demands be denied the child by any errors entailed by faulty breeding, ignorant and negligent upbringing, it is highly probable that not only will the child be seriously handicapped as regards health and happiness but, in addition, the social body to which it belongs will assuredly suffer. To equip ourselves as earnest students of human nature and its anomalies we must

# The Etiological Aspect of Nervous and Mental Disorder.

By J. G. PORTER PHILLIPS, M.D., F.R.C.P.

Physician Superintendent of Bethlem Royal Hospital; Physician for and Lecturer in Psychological Medicine at St. Bartholomew's Hospital.

In no branch of medicine has such a complete revolution of ideas occurred during the past quarter century as in the domain of psychiatry. Nomenclature in morbid psychology has become burdensome and bewildering, and the busy practitioner with lack of leisure and opportunity oftens finds himself in a maze of conflicting opinions, each emanating from some specialized school of psychological thought. Although the views held may show in some cases differences in detail, yet it can be seen that similarities exist in principle, and there is a great deal of common ground upon which discussion can take place.

It is obvious that in a monograph of this short nature it would be impossible to treat such a subject in other than a cursory survey. It will be my endeavour to place before the general practitioner, in as brief a manner as possible, some views and guiding principles which govern etiology as will enable him to co-ordinate and correlate signs and symptoms occurring in mental patients and to elucidate their causation.

Although disputes have been in constant activity between the schools advocating psychogenesis on the one hand and physiogenesis on the other, it must be agreed by the unbiassed observer with a wide and clear horizon that all cases of nervous and mental disorder present in addition a biological aspect for

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#### MENTAL DISORDER

They are the following (with corresponding emotion in brackets): — Flight (fear), Pugnacity (anger), Curiosity (wonder), Repulsion (disgust), Self-assertion (elation), Self-abasement (subjection), and Parental instinct (tenderness). These instinctive impulses are to some extent determined by hereditary influence, and their manner of expression may vary considerably in different individuals. Some of these desires may be successful in their attempt to express themselves, whilst others, being inconsistent with it, are suppressed by what is termed the conscious self.

Here we must deal with the processes termed repression and sublimation—both of which play a prominent part in our daily existence. By repression we are able to subjugate those apparently incompatible and useless forces whose expression has been suppressed, and these in the deeper layers of mind constitute "unconscious mental life." On the other hand, by the process of sublimation we are able to transfer the activities of repressed energies to new and more suitable fields of interest.

Most individuals who possess the necessary mental equipment and integrity will succeed in their attempts to carry out these processes, and no further trouble of a psychological nature will manifest itself. In the event of these processes being imperfectly carried out by an individual lacking integrity, then these undesirable and suppressed forces, if unimportant and few in number, may in the first instance only express themselves in the sphere of character traits and dreams. But should these forces be numerous and prominent in the unconscious layer of mind, their presence may be made manifest by certain morbid symptoms of varying character. It is the outcome of these successful desires which constitute the conscious individuality and character formation of a person. Therefore, in order to understand the possible origin of some of the common

study in detail the psychological problems relating to childhood, and to apply our knowledge practically in the interpretation of mental disorder. We may justly say that childhood is the golden age for the education and training of humans, who may be regarded as potentially healthy citizens. By a zealous study of this momentous period of human life one quickly realizes that in this fertile soil of childhood many pernicious seeds may be sown in ignorance, and later on, when propitious occasions arise, the strangling weeds of mental conflict arise and embarrass the psychological outlook of the individual.

It is the "Law of Adaptation" which governs the

It is the "Law of Adaptation" which governs the whole of animal and vegetable life, and to man especially falls the arduous task of approximating himself to the changing and exacting conditions of modern environment. Man, by the steady development of his cerebrum, has outdistanced his animal rivals in the domain of reasoning power, but he still retains all the instincts of the creatures below him. These instincts, with their ever-prompting impulses and emotional colouring, have latterly been carefully studied in their relation to mind and conduct.

Generally speaking, it may be assumed that all psychological phenomena are caused by these instinctive impulses—which are chiefly concerned with the instincts of self-preservation and race preservation. With their activity is associated a complex emotivity which is dependent upon the functioning of the great association areas and the sympathetic nervous system. We may safely accept at least seven primary instincts (McDougall), and from the exercise of one or more of them we may experience a corresponding emotion. These reactions are usually unbridled and lack control in animals and in undeveloped and unbalanced humans and play a very important and prominent part in character formation, demeanour and conduct.

#### MENTAL DISORDER

physiological changes accompany this process, and thus hand in hand these factors each play their respective but definite part in the mental and physical development of the individual. Thus, at puberty, when the testicular activity in the male and menstrual flow and ovulation in the case of the female make their appearance, it is certain that a readjustment of the temporarily disorganized metabolism must take place to ensure mental and physical equilibrium.

The work of Mott and others on the pathology of mental disorder occurring at puberty and during adolescence compels one to consider seriously the likelihood of the causative factor as being primarily a physical one. In a very acceptable form the suggestion has been put forward by them that the probable physical basis responsible for the mental peculiarities of dementia præcox is located in the sex glands. Furthermore, the influence of physical elements on emotivity is also brought into evidence in certain physiological processes like pregnancy, lactation, and those well-known bio-chemical modifications which occur at the menopause and premature senescence.

To the stable, these metabolic disturbances are of no serious moment, and at the most may create an evanescent change of personality. But in the case of the neuropaths, clinical manifestations of mental disorder invariably present themselves during such an epoch and may rapidly develop into a true psychosis. It will thus be seen that during these critical or physiological epochs, which really constitute physiogenetic factors, psychic anomalies force themselves into the arena of mental activities and disturbance of conduct results in the guise of a neurosis or psychosis.

As further support to the physiogenetic views held regarding causation in psychical disturbances, one can refer to the researches of Clement Lovell. He has recently shown that in certain diseases of the pancreas,

disorders of mind and therefore of conduct, we must acquaint ourselves with those instinctive impulses associated with such underlying motives of safety, self assertiveness, and aggression—that desire to be dominant or "above others."

This brief outlined description of the mental mechanisms involved shows us how our particular psychological types are evolved, and by their study we may the better be enabled to elicit the factors responsible for the incidence of a neurosis or psychosis from the psychical aspect.

Those of us who accept the views expressed by the psychogenetic and physiogenetic schools respectively, will experience an easy task in linking up the relationship between the psychical and physical factors presenting themselves for consideration in any particular case.

Now let us review the etiological principles involved in the physiogenesis of mental disorder. To mention that toxemia, whether of endogenous or exogenous origin, plays an important but familiar rôle in the etiology of psychical disorders must amount to a mere platitude in the minds of most observers. But, none the less, it is necessary that reference be made to certain well-known problems yet unsolved as regards intrinsic details. We can safely begin by instancing the remarkable and disturbing influences exerted on the mental make-up of an individual by the absence or presence in excess of any bio-chemical constituent of the body. Any marked disturbance of metabolism may slowly or suddenly cause a state of complete mental disorganization and dissolution, and by our steadily growing knowledge of bio-chemistry we can gauge to a great extent in what chemical sphere the anomaly exists.

It is well known to all of us that in the evolution of the emotions—the sub-soil of conduct—a number of

#### MENTAL DISORDER

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characterized by deficient secretory function, definite "blood changes" occur, and these are held responsible for the morbid states of mental anxiety which subsequently develop. For it has been found that by suitable and adequate stimulation of the pancreatic gland the abnormal "blood changes" and the anxiety condition simultaneously disappear.

Moreover, it is well known that physiological defects, characterized by an ill-developed or deformed physique, may play an active psychogenetic part in the etiology of mental disorder. By a conscious or "unconscious" knowledge of his somatic inferiority an individual may exhibit a psychical over-compensation of such an exaggerated nature as to place himself in the pathological zone of mental disorder. In connection with this constitutional inferiority, it is interesting to note that Bortel discovered among suicides "a preponderance of the thymico-lymphatic tissue and especially a hypoplasis of the sexual glands."

Adler admirably describes the position of affairs when he states that "the neurotic individual is derived from this sphere of uncertainty, and in his childhood is under the pressure of his constitutional inferiority," whereas "the psychotic patient strives to bring about a realization of his fiction or phantasy."

By a broad-minded study of the foregoing principles, which constitute a very small proportion of the innumerable factors entering into the question of etiology, we must surely in all cases of neurosis or psychosis give generous consideration to both physiogenesis and psychogenesis. Failing this, the clinician will find himself ill-equipped as a diagnostician and misguided as a therapist.

# The Results of Operative Treatment of Malignant Disease of the Breast.

BY H. P. WINSBURY WHITE, F.R.C.S.

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HE cases forming the subject of this paper were operated upon at the Royal Free Hospital between the years 1900 and 1913. In 1924 an inquiry by letter was made to every patient who had been operated upon during this period. As one expected, the bulk of the letters were returned as the patients could not be traced by the postal authorities. The state of health or time and cause of death of twenty-five cases were obtained in this way. Facts relating to the death of sixty-seven others were ascertained from the records of the Registrar-General. is likely that some of the twenty-eight cases not traced were still alive when the search was made. The required information was obtained, however, in ninety-two cases. I wish to record my indebtedness to Dr. Grace H: Newell, who undertook the laborious task of abstracting the notes of 120 cases.

It was hoped that by dealing with a period of time more than ten years ago some cases would be discovered who had survived the removal of their growths for more than ten years. This hope was realized in a number of cases.

The left breast was the seat of the growth in fortyseven cases, and the right in forty-five. The ages of the patients ranged from twenty-eight to seventy-six

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#### CANCER OF THE BREAST

after operation, and four cases were alive at periods varying between fifteen and seventeen years after operation without signs of recurrence. In two of these cases, however, there was no record of a microscopical report, although one growth was regarded as a typical scirrhus on naked-eye examination, and one bears in mind how characteristic these appearances are.

In considering the causes of death in patients who survived operation for periods up to ten years, we find death from carcinoma is the rule. In several of these, although the cause of death was not definitely stated to be carcinoma, yet the onset of symptoms of intestinal obstruction, pulmonary consolidation, and cerebral compression respectively, leading to a fatal termination in each instance, was strongly suggestive of such.

Of seventy-three cases, in seven only was the cause of death in doubt. In the remaining cases it is of some interest to note that in seven instances death was attributed to carcinoma in one of the organs of the body not uncommonly the seat of a primary carcinoma, as follows:—carcinoma of the uterus in two cases; carcinoma of the stomach in two cases; carcinoma of the larynx in two cases; carcinoma of the colon in one case.

In another instance panhysterectomy had been performed for carcinoma of the uterus previous to the operation on the breast.

#### RESULTS IN RELATION TO SCOPE OF OPERATION.

In considering the question of prognosis in relation to the scope of the operation performed, it is found that in ten cases the operation consisted in removal of the breast and axillary contents without interfering with the pectorals. According to our present-day standards most of these cases would be considered unsuitable for any operative treatment other than the modern radical operation. In two cases, however, which appeared to

years; the average age was fifty years. Forty-five cases had the growth in the upper hemisphere, and largely occupying the outer quadrant.

A correct estimation of the duration of the disease before operation was not possible in a number of instances, but a fairly good idea of the size and extent of the growth before operation was indicated in all. More than 50 per cent. of those traced were dead within three years of operation. On the other hand, over 20 per cent. survived for varying periods of more than ten years. One case lived for twenty-one years after operation, and died of senile decay, without sign of recurrence. The microscopical pathology of the tumour in this case was, however, not recorded. Two others were still alive more than nineteen years after operation, and each of these is worthy of some detailed reference. In both carcinoma was established by the microscope. In one a local excision of what proved later to be a spheroidal-celled carcinoma preceded the removal of the breast and axillary glands. The pectoral muscles were not removed. The other case survived in spite. of the fact that microscopically the growth was described as encephaloid and that carcinomatous cells were identified in the axillary glands. Here, as in the previous case, the pectoralis major was not removed with the breast and glands. It is instructive to note the limited extent of the operation in these two longlived cases.

Nineteen cases, 20 per cent. of the total, were known to have survived for ten years or more. In one case only of these did there eventually develop any evidence of a recurrence. In this instance the patient died fourteen years after operation with metastases in the liver, an unusually long period for manifestation of recurrence in this organ.

Twelve cases, 13 per cent. of the total, survived for periods varying between eleven and fourteen years

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be more favourable than the others, the results seemed eminently satisfactory, as one lived for over nineteen years without signs of recurrence, and the other was alive and well twenty years after. The malignancy was verified in both cases by the microscope. In one the growth was described as encephaloid, and secondary deposits were identified in the axillary glands.

The extent of the operation in the remaining cases varied between removal of the whole breast with the pectoral fascia, or a small portion of the pectoral muscle, and the modern operation with the extensive resection of fascia, together with the bulk or the whole of the pectoralis major, the pectoralis minor, and the axillary contents. A scrutiny of the cases which were subjected to the more radical operation as stated above shows a length of time of survival no better than in those on whom the less thorough operation was carried out.

The average number of years survived for twenty-four such cases was 6.7, whereas for fifty-nine cases, with the more complete operation, the average length of survival was five years. One does not bring forward these figures in support of the limited operations, for one realizes the fallacy of attaching too much importance to statistics, but it is useful to know that the patient is not necessarily condemned to a hopeless prognosis because the more radical operation has not been carried out.

RESULTS IN CASES WITH PRELIMINARY DIAGNOSTIC EXCISION OF THE GROWTH.

In sixteen instances was a preliminary excision of the tumour made for diagnostic purposes. Eight (50 per cent.) of these, all of which proved microscopically to be carcinomatous, survived for periods longer than eight years. Two lived for fourteen years, one was still alive after fifteen years and one after twenty years.

#### CANCER OF THE BREAST

The average number of years of survival following operation was 7.3 for sixteen cases with preliminary excision of growth, and 5.4 for the seventy-six cases which did not have this. In all cases but two, the local excision was followed at the same operation by the radical procedure. Of the two cases forming exceptions to this rule, in one the diagnostic excision was carried out a week before the more complete operation. This patient was alive and well fifteen years after the operation. The pathological report was as follows: Encephaloid carcinoma, probably rapidly growing. Glands show some infiltration with growth. As regards the other case, a local excision was carried out six weeks before the radical operation. The patient was alive and well fourteen years later. The growth proved microscopically to be a duct carcinoma.

Although one does not wish to make light of the danger of dissemination of cancer cells by cutting across lymphatics probably loaded with malignant cells, it is an advantage to know that an exploratory local excision, so often helpful to the surgeon in doubtful cases, does not necessarily establish a bad prognosis.

#### COMMON FACTORS IN CASES OF EARLY DEATH.

The commonest feature in the short-lived cases, regardless of the type of operation, was the fixation of the growth to the pectoral fascia or muscle. Adhesion of the growth merely to the skin is not anything like so unfavourable a sign as the former, because many of the long-lived cases evidenced this feature.

More than 24 per cent. of the total number of cases survived operation for more than nine years; of these one only showed any fixation to structures deep to the breast, whereas it was a common enough physical sign in the great bulk of the cases which survived operation only for short periods. 64.5 per cent. of the cases in which the growth was fixed to the pectorals were dead

be more favourable than the others, the results seemed eminently satisfactory, as one lived for over nineteen years without signs of recurrence, and the other was alive and well twenty years after. The malignancy was verified in both cases by the microscope. In one the growth was described as encephaloid, and secondary deposits were identified in the axillary glands.

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The average number of years survived for twenty-four such cases was 6.7, whereas for fifty-nine cases, with the more complete operation, the average length of survival was five years. One does not bring forward these figures in support of the limited operations, for one realizes the fallacy of attaching too much importance to statistics, but it is useful to know that the patient is not necessarily condemned to a hopeless prognosis because the more radical operation has not been carried out.

## RESULTS IN CASES WITH PRELIMINARY DIAGNOSTIC EXCISION OF THE GROWTH.

In sixteen instances was a preliminary excision of the tumour made for diagnostic purposes. Eight (50 per cent.) of these, all of which proved microscopically to be carcinomatous, survived for periods longer than eight years. Two lived for fourteen years, one was still alive after fifteen years and one after twenty years.

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The average number of years of survival following operation was 7.3 for sixteen cases with preliminary excision of growth, and 5.4 for the seventy-six cases which did not have this. In all cases but two, the local excision was followed at the same operation by the radical procedure. Of the two cases forming exceptions to this rule, in one the diagnostic excision was carried out a week before the more complete operation. This patient was alive and well fifteen years after the operation. The pathological report was as follows: Encephaloid carcinoma, probably rapidly growing. Glands show some infiltration with growth. As regards the other case, a local excision was carried out six weeks before the radical operation. The patient was alive and well fourteen years later. The growth proved microscopically to be a duct carcinoma.

Although one does not wish to make light of the danger of dissemination of cancer cells by cutting across lymphatics probably loaded with malignant cells, it is an advantage to know that an exploratory local excision, so often helpful to the surgeon in doubtful cases, does not necessarily establish a bad prognosis.

#### COMMON FACTORS IN CASES OF EARLY DEATH.

The commonest feature in the short-lived cases, regardless of the type of operation, was the fixation of the growth to the pectoral fascia or muscle. Adhesion of the growth merely to the skin is not anything like so unfavourable a sign as the former, because many of the long-lived cases evidenced this feature.

More than 24 per cent. of the total number of cases survived operation for more than nine years; of these one only showed any fixation to structures deep to the breast, whereas it was a common enough physical sign in the great bulk of the cases which survived operation only for short periods. 64.5 per cent. of the cases in which the growth was fixed to the pectorals were dead

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skin or muscle, gave a satisfactory result, for the patient was alive and well thirteen years after a radical operation, which included removal of the pectorals, was performed. A less satisfactory case was one in which the tumour was 3 in. by  $3\frac{1}{2}$  in. in the upper hemisphere of the breast, although not fixed to the deeper structures, but with carcinoma in the glands. Between eight and nine years following radical operation, the patient died as a result of intestinal obstruction, probably due to abdominal metastases.

A large and rapidly-growing tumour will, of course, increase the likelihood of already established visceral metastases. The early death cases were associated with metastases in the abdomen, lungs, cranium and spine, in this order of frequency, and one cannot help feeling that in many cases when operation is carried out deep-seated secondary deposits already exist. No doubt many of the smaller ones are successfully combated and destroyed, notably in the lungs. Schmidt's investigations reveal that pulmonary emboli are extremely common, and that the majority of these are destroyed. Skiagrams have revealed numbers of the larger pulmonary metastases, and saved the patients from useless operations. But one cannot hope to identify the smaller deposits by these means.

#### MICROSCOPICAL CHARACTERS OF THE GROWTHS.

In the pathological reports the majority of the tumours were described briefly as carcinoma, spheroidal-celled carcinoma, scirrhus, and a few as duct carcinoma. There were six of the last, and they had an average length of life of 11·1 years. There was one case of sarcoma described as spindle-celled:—

The patient was a woman of seventy-five, and the growth was 2 in. by  $1\frac{1}{2}$  in. in the upper and outer quadrant, with the overlying skin ulcerated. There was no fixation to the deeper structures, and no palpable glands in the axilla. The breast, pectorals and glands were removed, and the wound suppurated. The patient died more

within three years of operation, and the average length of life for these cases was 3.6 years, compared with 6.9 years, which was the average for the remaining sixty-one cases, in which the growth was not fixed.

In regard to the prognosis with glandular metastases already established in the axilla, this is a little less unfavourable, seeing that four (20 per cent.) of the total number who survived operation for periods more than ten years had the growth in the glands. This fact was established by microscopy. 63.6 per cent. of the gland cases, as proved by the microscope. were dead within three years of the operation. average length of life after operation for twenty-two cases with metastases in the axillary glands, as established by microscopy, was 5.6 years, compared with 6.1 years for the seventy cases in which no metastases were found in the glands. The fact of mere palpable glandular enlargement is no evidence of glandular deposits. In one case with secondary deposits in the axillary glands there was a palpable supraclavicular gland as well. The latter was not removed. patient survived the operation for more than eight years. One of the gland cases died nineteen years after operation, of gross mitral disease. Two others were alive and well fifteen years after, and another thirteen years following operation.

Prognosis as influenced by the size of the new growth is important from the fact that the larger growths, on the whole, are more likely to have extended to other structures both locally and peripherally, and therefore in such cases the prognosis is usually bad. But where there is no evidence of extension of the growth beyond the breast, although the tumour may be considered large the prognosis is not necessarily hopeless. For example, in one case a carcinoma centrally placed, although measuring 2 in. by  $2\frac{1}{2}$  in., but not fixed to the

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The patient was a woman of seventy-five, and the growth was 2 in. by 1½ in. in the upper and outer quadrant, with the overlying skin ulcerated. There was no fixation to the deeper structures, and no palpable glands in the axilla. The breast, pectorals and glands were removed, and the wound suppurated. The patient died more

than six years later of what was stated to be senile decay, and with no recognizable recurrence in the meantime.

It is of some interest to notice that in several cases in which the growth was described as encephaloid, the patients survived for considerable periods of time. Two encephaloid cases have already been referred to as having survived for fifteen and nineteen years respectively, and a third one survived for eight years. In the last, a preliminary excision of the tumour preceded the radical operation, which consisted of removal of the breast and axillary glands without the pectorals.

Another case described as colloid carcinoma was alive and well fourteen years after operation. In this case also the radical operation was preceded by preliminary excision of the tumour for diagnostic purposes. The breast, pectorals and axillary glands were then removed.

MacCarty, in a microscopic study of 293 cases of carcinoma of the rectum, stomach and breast, shows by charts that the post-operative length of life depends largely on the presence and amount of lymphocyte infiltration, fibrosis, and hyalinization, all of these processes taking place, of course, in opposition to the cancer cells.

#### SUMMARY.

In searching the cases dead within three years of operation for signs making a bad prognosis a certainty, one notes one or other of the following signs in every instance:—

- (1) Fixation of the growth to the pectoral fascia or muscle.
  - (2) Fixation of the growth to the overlying skin.
  - (3) Palpable axillary glands.
- (4) Microscopical evidence of growth in axillary glands.

There was no case in this group that did not have one or other of these signs. In turning to the cases

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which survived for more than ten years, it is found that with one single exception the same rule holds. But in one case only of these was the growth fixed to the pectoral fascia.

There is no doubt that fixation of the growth to the deeper structures is a physical sign which almost assures a bad prognosis in cases which may otherwise be considered operable, but, as seen from the exceptional case in this series, operation is always worth while in cases not too advanced.

The microscopical demonstration of the carcinoma in the glands does not render the outlook anything like so grave as demonstrated by several cases in this series.

With regard to fixation of the growth to the skin, and to mere palpable enlargement of the glands, many of the long survival cases had both these signs present, so that, in the absence of the unfavourable indications previously mentioned, these must not be looked upon as making the outlook more serious, unless clinically there are manifestations that the glands undoubtedly contain carcinoma, or this fact is proved later microscopically.

The conclusion one arrives at is that in operable cases, while recognizing certain features as making a bad prognosis a matter of certainty, and in other cases as highly probable, the outlook is always a matter of conjecture, in spite of the most radical operations.

# Rural Midwifery Practice.

By ENEAS K. MACKENZIE, M.D. Late Examiner, Central Midwifery Board, Scotland

HE conditions under which rural practice is conducted are so different from those under which the average teacher of obstetrics works that, even were it only to elicit criticism, a description of some of the procedures of typical practice might be helpful. There is just a tendency amongst eminent authorities who in conducting their practice have assistants, male and female, to carry out all procedures except the actual delivery, to characterize as "average" the worst type of general practitioner obstetrical practice, whereas the average practice of the average rural practitioner is at least equal to average hospital practice, although in some of his cases he may have to do everything for the mother from the making of the bed, the washing of the involved parts, the giving of enemata, and the administering of chloroform, if the latter be needed, to the washing and dressing of the baby. It may be argued that such a view may be forgiven the specialist, because he receives many of his cases when the patient is far advanced in her labour, and when operative procedure of a dangerous type has become essential which, had he seen the case earlier, might have been anticipated by simpler, more effective, and safer methods. The same considerations, however, apply to rural practice, the practitioner, in many cases, being called in by the so-called qualified midwife when a case is far advanced, an impasse reached, and yet the rural practitioner has to face this emergency without any of the conveniences ready to the hand of his hospital colleague, but I am convinced that an impartial inquiry would go to show that his average results are

at least equal to the average results of hospital practice. It is an easy matter to cite individual cases of failure, but these cases are also seen in hospital practice, and there it is easy to cover the tracks of failure, whereas failure in rural practice becomes known to a whole neighbourhood, gaining in luridity as it spreads.

The chief value of antenatal care is that the doctor and the patient get to know one another thoroughly. The former, as a result of his examination, becomes intimate with the mentality and physical condition of the latter, the relationship between the baby and her interior, and both from his own observations and from his instructions to his patient as to what she should consider of such importance as to necessitate a visit from him, he is able to ward off possible dangers, and even face emergencies with a tranquil mind.

Too much, however, must not be made of antenatal care, and there is just a tendency in that direction. The onset of actual labour may change the whole aspect of the case, however favourable conditions appeared immediately before. The position of the fœtus in relation to the mother may be radically altered. Many factors, of which the size, shape, etc., of the pelvis is but one, determine the relation of the fœtus to the mother. and experience tells me that it is not always good policy to change into a vertex a breech which Nature in her wisdom has so arranged. A breech is sometimes easier to deliver than a vertex, and one has to think once, twice, and even thrice before interfering. Many things are hidden which the most careful pelvimetry, antenatal examination, and even X-rays do not divulge so far as the relationship between the mother and her child is concerned, and Nature knows a thing or two not yet dreamed of by even the most experienced hospital obstetrician.

It may not be possible in urban practice to have a physician attend every case of labour, but in rural

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just in these difficulties that the midwife is hopeless, and therefore, in my opinion, a qualified physician should be in attendance upon every labour where at all possible.

The following are the most important of my

preparations for an actual confinement:-

1. The cleanliness of the patient, the whole area involved being thoroughly washed, the hair being clipped very short, or, if someone is available who can do it safely, shaved.

- 2. The height and hardness of the bed, and cleanliness of the bed clothes.
  - 3. The efficient emptying of the bladder and rectum.
- 4. An abundant supply of hot water, clean towels, and a sufficiency of clean basins.

I shall now describe the conducting of a confinement under heads which explain themselves.

The Preparation of the Physician.—The attending physician should always wear a long clean rubber apron. This is important from the point of view of the patient, and, in these days of expensive clothes, of the physician also. A soft rubber apron is easy to clean, and easy to carry. The best soap I find to be Synol soap. It makes an excellent lather, is an efficient disinfectant, and does not injure the hands. Nails are kept pared, and scrubbed with a nail brush, a very important matter in country practice, where the physician's fingers find themselves negotiating so many queer places, from the interior of his car to the interiors of his many patients. Gloves, over the use of which much controversy rages, I do not now use unless there is vaginal discharge, or some other very definite reason. With a proper strength of biniodide of mercury lotion it is an easy matter to keep the hands thoroughly clean. and it is easier to manipulate without gloves than with them, especially when one has not only to administer chloroform, but actually to carry out the

practice it is possible for the physician to see every case antenatally and, in the large majority of cases, to attend the actual confinement. With all due respect to the opinion of Professor McIlroy, and others of like kind, I have yet to meet the midwife who can really, when up against a difficulty, unless it is very apparent, recognize it in time to give the attending physician a real chance to deal with it as easily as he otherwise might. This is especially the case in the diagnosis of a persistent occipito-posterior position. In the average manual upon obstetric practice, the diagnosis of an occipitoposterior position is made very clear. In actual practice it is often very difficult, once labour has begun, whether the examination is made abdominally or vaginally. Especially is this so in a primipara with a pelvis bordering upon the small size, and where, as Nature may in these cases fail to correct the position, the right diagnosis is of vital importance. The patient has a tendency, while abdominal palpation is being made during labour, to tighten her abdominal muscles, develop a pain or a more or less tonic contraction of the abdominal wall, often from nervousness, and this prevents efficient palpation, and, although the head may be well down through the pelvic canal, the narrowness of the vagina, the natural involuntary resistance of the soft parts, especially in a primipara, and the unwillingness of the examiner to hurt, with, in addition, the interposition of often fairly thick, perhaps edematous soft parts between the head and the examining finger makes the identification of the fontanelles and sutures no easy matter for one even of long experience. Of course, in hospital practice, more liberty is taken, patients are hurt more, examination is a more severe ordeal, and patients will tolerate examination of a kind which they will not put up with in private practice. Even the difference between a breech and a vertex is not, under certain circumstances, too simple, and it is

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energy without result, labour becomes tedious, or, on the other hand, strong pains may actually tear the cervix, and instruments be ultimately blamed for what they were not responsible. In such cases gentle dilatation can be safely performed intravaginally, and the cervical ring can be slipped over the head. patient be examined after delivery, it will be found that the cervix had not been fully dilated, or fully drawn up, -but hangs like a curtain in the vagina. It is, however, uninjured. Occasionally in a primipara the perineum is very rigid, and a very firm transverse band is felt resisting the oncoming head; it feels as if it must break before the head can possibly come through. Here again dilatation with the fingers is possible, can be done with very little discomfort to the patient between pains, and saves the patient and the obstetrician the misfortune of a ruptured perineum, with its dangers and discomforts to the former and its difficulty of repair to the latter. Only those who have to repair a perineum in a cottar's house, in a cottar's bed, with the poor light and help at hand, can realize the joy of finding upon delivery that the perineum is whole.

Pituitrin.—Pituitrin has been the greatest boon to the rural practitioner yet discovered. It saves the patient hours of pain, the physician hours of weary waiting. It can be used fearlessly, but only after diagnosis is fully established, and with, in primiparæ, the greatest caution. The dosage has given rise to difference of opinion, but personally I never use less than a full cubic centimetre, thus obtaining full effect, and I have not yet, after having used it in some hundred cases, seen any evil consequences, hæmorrhage or otherwise. One point is important, and that is that the placenta should be expressed immediately the baby is separated. If this is done, the placenta in 99 per cent. of cases slips out complete without any difficulty, and without much pressure. In multiparæ I always give pituitrin by

confinement. Gloves tend to make one careless. Once the hands are thoroughly washed and scrubbed, then one can keep them free from impurity with clean water, Synol soap, and biniodide lotion. Certainly out of over 700 confinements I have not had a patient with a post-partum temperature of over 100°F., and this result satisfies me that it is not the gloves, or the want of them, that is the cause of puerperal morbidity.

Examination of the Patient.—Once labour starts abdominal palpation, without chloroform, is often difficult in those cases where a certain diagnosis is essential. Rectal examination is a filthy method, uncertain in its results, and however carefully you may wash your hands, gloves or no gloves, certainty of sterility is absent even although the bowel has been washed out frequently, because, as the head recedes a little between the pains, fæcal material, mucus, etc., trickles into the rectum to just above the sphincter, and, when you examine, is liable, with the onset of a pain, to infect a much wider area of carefully-cleaned parts than is desirable, or even expected. In actual practice I always push into the anus a small soak of biniodide lotion, and cover this with a further pad. Vaginal examination, in spite of the theories of many writers, if proper precautions are taken, is quite safe and an advantage to both obstetrician and patient. Where abdominal palpation, after the commencement of labour, is either difficult or of little practical value, owing to the uncertainty of its information, by vaginal examination we are able to confirm or otherwise our diagnosis, and we are able to note and guide progress. A very slight manipulation at times makes slow progress quick, or removes a difficulty which, if left to itself, would become aggravated. It may happen that the cervix is not drawn up, and does not dilate as fully as one would like. It seems to grip and hold back the head. In such cases labour pains seem to expend their

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by itself, in giving chloroform, turning the head with the hand into the anterior position, holding it in this position until forceps are applied, injecting pituitrin, and using the forceps simply as a means of guiding the head over the perineum. In primiparæ I often find that once the head is turned the next pain gives it a move on, fixes it in its new position, and pituitrin will only be given under conditions already detailed. In these cases, if all conditions are suitable, it is useful to turn the body as well as the head, but in actual practice, with the type of beds in existence, the fact that one is alone, and has to be anæsthetist and everything else, makes it doubtful if one is doing the right thing, except in exceptional circumstances, in running the risk of infection which this procedure entails. It is not easy, without sufficient help, to have the patient in the dorsal position under deep anæsthesia; the thighs get in the way, the patient moves, the anæsthetic has to be watched, and so on. In practice, if diagnosed in time, and even if the membranes have been ruptured, it is not difficult to put the hand into the vagina, turn the head, and retain it in its new position until forceps are applied, and use the forceps simply as a guide. Once the forceps are applied, it may then be helpful, the patient being still under the anæsthetic, and both hands free to turn the body round as well if this is found necessary, which is very rarely the case. The important point is not to attempt to turn the head by means of the forceps, not to attempt delivery without turning, to turn at the correct moment, and above all to diagnose the condition.

Ruptured Perineum.—Nothing in obstetrical practice is more annoying than a ruptured perineum. To the patient it is a source of the greatest possible discomfort, and the joy of a first baby is very considerably damped by this most painful and trying injury, however carefully it may be treated. The obstetrician may explain the matter how he will, but the patient and her

injection into the muscles of the buttock, once I have convinced myself that there is no obstruction to the onward progress of the head, and when the os is threequarters dilated. In primiparæ I first satisfy myself that the outlet of the pelvis is sufficiently roomy to allow of easy exit to the head—this in spite of Dr. Fitzgibbon's good opinion of pelvic outlets, a nasty deceiving part of the female anatomy, which takes the conceit out of us if we risk assuring friends and patient that all will be over in a minute before we have made certain that the outlet has not something for us up its. sleeve. Secondly, I make sure that the head is completely through the cervix, and rests upon the pelvic floor, that the perineum is soft, pliable, and dilatable, and that, with each pain, the anterior part of the anus is distended, the mucous membrane showing. Once the pituitrin commences to act, which it does as a rule in about a minute, I give chloroform, and watch the effect. In many cases the patient delivers herself, assisted by a gentle pushing movement with a soaked swab upon the anterior part of the now stretched anal wall, at the same time carefully guarding the perineum with very gentle support. In a few cases the application of the forceps is not so much essential as a great help, and by their use, guiding the head during its delivery one is able to save the perineum. This procedure gives me a high percentage of forceps cases, but Nature at times, with or without pituitrin, delivers a head so forcibly-and that before the perineum is properly softened and dilatedthat a tear becomes inevitable, whereas by a judicious use of the forceps, guiding and restraining the head, the perineum can, in the majority of cases, be saved.

Occipito-Posterior Position.—It is very important before using pituitrin, even in a multipara, to make certain that we are not dealing with an occipito-posterior position. In such cases there should be no hesitation at the proper stage, each case being judged

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It is important in tying the silkworm-gut sutures that care should be taken not to knot too tightly, as in such cases the sutures may cut their way through, and the wound again gape. By treating a perineum in this way, no discharge works in behind the perineal skin from the vagina, and thus healing is facilitated and sepsis avoided. After stitching, I simply touch the wound with tincture of iodine, and dress with ordinary sterile gauze pads. For the first eight days the bowels should be evacuated by means of an enema, first softening the contents of the bowel with olive oil, and then using soapy water as an evacuant. It is sufficient to do this once in three days. The permanent injury, discomfort, bladder trouble, and ill-health which follows the inefficient treatment of a ruptured perineum, a neglect which is not limited to general practitioners, is my excuse for going into this matter so fully. I recently saw a patient who had left hospital with a hopelessly repaired perineum, and who could not retain her urine for more than an hour at a time, and often not so long. She arrived at my surgery with a series of B. coli vaccine ampoules for injection. A most modern method of treating a ruptured perineum.

Forceps and Chloroform.—Just one word upon this subject, and that is to express the opinion that to use forceps without chloroform in either hospital or private practice is to inflict unjustifiable cruelty; but such things, I am sorry to write, are done.

friends feel that it should not be. This explains why so many such injuries go untreated. The doctor himself looks upon the accident as a reflection upon his skill, and tries to conceal it by ignoring it. In hospital, where patients are treated by "professors" (at least so the victims think), almost any injury is either accepted as natural, or, if the injuries are very severe, tolerated with the reflection, "It is a good job I went to hospital, my own doctor wouldn't have managed at all," However this may be, if a confinement is undertaken then it is the duty of the obstetrician to see to it that all damage done is repaired. In some women, no matter what precautions are taken, the perineum will rupture, and where I feel this to be the case, I always warn the patient of the possibility, and if this is done, then one may be even gratefully thanked for having saved her life, and for things not being worse. In some cases the perineum is like wet blotting-paper, and gives way, inside the vagina, about the middle, before the head is even half-way through the external orifice.

Every torn perineum, however slight the tear, should be carefully repaired. I do not think that two or three silkworm-gut sutures passed through the perineum, however deeply, a proper procedure, although this method is advocated in some modern manuals. vagina should first be carefully stitched with twenty to thirty day chromic catgut from the perineal side, and knotted within the perineal tissues. Two or three deep sutures of a similar type should then be passed through the perineal fascia and muscle, but excluding the skin. This procedure results in a very small oval wound being exposed to the perineal surface, which is easily and effectually closed by three or four deep silkworm-gut sutures, the loose ends of the latter being tied together as, when cut short, their sharp ends prick the flesh on either side of the perineum, and this causes great discomfort.

#### RURAL MIDWIFERY PRACTICE

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# The Action of Waters and Baths in Arthritis.

BY VINCENT COATES, M.C., M.A., M.D.

Physician, Royal Mineral Water Hospital, Bath; Physician to Outpatients, Royal Hospital for Sick Children and Women, Bristol; Assistant Physician, Royal United Hospital, Bath.

It must be clearly stated at the outset that hydrology is but a unit in the all too inefficient host of measures directed towards the reduction of disability produced by arthritis; and the results are not in any degree comparable to those obtained in fibrositis, seeing that it is customary and good practice to employ simultaneously other therapeutic measures. Proper scientific investigation is essential in all early and in many other cases of longer standing, and indiscriminate bathing is to be strongly decried, as is the fetish of obtaining a mobile joint at any cost.

The objects of hydrological treatment are two-fold:
(a) as a prelude to orthopædic measures, (b) symptomatic, i.e. relief of pain, reduction of stiffness, elimination of toxins, and improvement of metabolism.

It is the duty of every physician, therefore, who has charge of arthritic cases, in the first instance to make an accurate diagnosis with full regard to the clinical types encountered, and then to decide upon a definite objective in each individual case; and to prescribe efficient symptomatic treatment when the disease is more active or the point has not been reached when surgery is desirable.

The hydrotherapeutic measures employed depend upon the object aimed at, and are illustrated by

instancing some clinical types of arthritis and dealing with one hydrological method only in each case.

GOUT.

(To illustrate the use of waters per orem towards the elimination of retained products.)

A clinical description of this obscure metabolic disorder need not be gone into, but opportunity is taken to protest against the term "gouty" being applied indiscriminately to obscure conditions occasionally associated with gout.

The regime at a spa is most valuable in the treatment of gout, and it is usually accepted that the ingestion of alkaline waters is beneficial, in spite of statements made by Finck who advocates the use of phosphoric acid in the place of alkalis. The aperient waters are especially useful. It should be noted that recent researches have brought to light the fact that the calcium content of the blood serum in gout is very much augmented beyond the normal. Treatment, therefore, should be directed not only to the elimination of uric acid, but towards the reduction of blood calcium, which is possibly a factor in the production of the not infrequent thromboses which occur in gout.

Diuresis is aimed at in the case of some non-laxative waters, and elimination by the bowel in the case of sulphated waters, drunk either at the source or after bottling. Good results in cases of gout are almost invariably obtained by spa treatment.

#### MENOPAUSAL ARTHRITIS.

(To illustrate the use of vapour baths for the reduction of weight.)

This is primarily a metabolic disorder 3 most frequent in women at the climatic. The part, if any, played by sepsis is as yet undetermined. The knees are the joints most commonly affected, stiffness being the first sym-

ptom, with crepitation and grating, apt to deceive the unwary into believing the condition to be one of osteoarthritis. The patella is less mobile than normal and in an X-ray plate is seen to be in close apposition to the lower end of the femur. At a later stage there is much periarticular thickening and the normal hollows at the sides of the prepatellar ligament are filled in. The joint is painful and swells periodically, especially by increase in size of the semimembranosus bursa. In time erosion of the cartilage and bony changes supervene.

The earliest stage, viewed pathologically, is probably that described by Strangeways under the "dry type" of arthritis. In this the main characteristic change is the absorption of synovial fluid and parchment-like synovial membrane, the atrophied fibrous capsule gripping the bones of the articulation closely. The second stage is one in which reaction of a villous nature is evoked, leading eventually to erosion of cartilage, as good X-ray plates will show.

Since many of the sufferers from this particular joint affection are prone to obesity, reduction of weight is important, and apart from methods aiming at increase of metabolism, diet and local measures, much can be done by judicious hydrotherapy. Good results can be obtained by the whole body Berthollet bath. A gradual rising of the temperature to 113° F. does not reach the point of discomfort at the first bath. Subsequently 120° F. can be reached, and usually twenty minutes of this on alternate days results in profuse sweating. A spray douche at 105–6° F. follows, and a hot pack completes the treatment. Care must be taken that there is no subsequent chill.

#### ATROPHIC ARTHRITIS.

(To illustrate the use of mud packs as a prelude to orthopædic measures.)

This is a peculiarly intractable form of multiple 276

#### ARTHRITIS

arthritis, almost exclusively affecting young females at its onset. No obvious foci of infection are apparent, and the teeth are usually excellent. The periarticular tissues in relation to the smaller joints are usually the first to be attacked. The lymphatic glands in relation to these are much enlarged and the symmetry of distribution is striking. Atrophy is the most conspicuous feature, not only of the muscles and skin, but of the bones. There is anæmia of the secondary type, a relative or absolute lymphocytosis, often deficient or absent HCl 5 in the stomach contents, and a lowered basal metabolic rate.3 X-rays show no bony changes in the joints other than fusion of joint surfaces by pressure. Strangeways ' has described the great rarefaction of the bones at autopsy, the cancellous tissue being largely replaced by fat, so that the bone cut readily with a knife or snapped like a carrot if force was applied.

Provided that surfaces of joints have not fused by pressure, extension can often be applied with effect. Forcible manipulation under an anæsthetic is undesirable and even dangerous. In many instances the knee joint is in a flexed condition mainly because of spasm, and apart from a really deep anæsthetic when thorough relaxation may be obtained, the best results are reached by extension, or graduated splints, put on after local treatment, such as a mud pack.

The mud is usually obtained from deposits, often volcanic, in the neighbourhood of the spa, and is applied in the manner of a poultice. The mud has but little thermal conductivity and low specific heat, hence prolonged applications (up to two hours) and high temperatures (up to 115° F.) can be tolerated in certain instances.

SENILE OSTEO-ARTHRITIS OF THE HIP.

(To illustrate the use of the deep bath for the reduction of painful spasm.)

Senile osteo-arthritis of the hip is another very well-

ptom, with crepitation and grating, apt to deceive the unwary into believing the condition to be one of osteoarthritis. The patella is less mobile than normal and in an X-ray plate is seen to be in close apposition to the lower end of the femur. At a later stage there is much periarticular thickening and the normal hollows at the sides of the prepatellar ligament are filled in. The joint is painful and swells periodically, especially by increase in size of the semimembranosus bursa. In time erosion of the cartilage and bony changes supervene.

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Fehling's solution, and negative Wassermann reaction, it would appear important that not only should nothing of a violent nature be employed therapeutically, but that while the condition is still in an active stage, heat should be given by means of a medium offering reasonable support. Theoretically, a peat bath from 99° F. to 105° F. or 106° F. would be beneficial. There has been no recent opportunity to try this.

#### PERIARTICULAR FIBROSITIS.

(To illustrate Aix douche massage as a method to reduce stiffness and immobility.)

Periarticular fibrositis is the condition originally described by Jaccoud. Although this properly falls into the category of fibrositis, it is so frequently labelled "chronic rheumatic arthritis" that it deserves a special note. The term is self-explanatory. Fibrositic nodules are particularly amenable to wet massage treatment. By the Aix system, massage is applied by one or two masseurs to the patient seated upon a wooden stool on a floor flooded with water, under a stream of water from 99° F. to 103° F. or 104° F. Direct spraying under pressure finishes the bath.

"TUBERCULOUS RHEUMATISM" OF PONCET.

(To illustrate contrast douching with a view to tightening lax ligaments.)

In this condition the joint affected presents a periodical synovitis with effusion associated with periarticular nodules. Although ascribed by French writers to attenuated tuberculosis, in all probability the condition is exactly analogous to that obtaining in children who suffer from a smouldering infection due to the virus of rheumatic fever, with a liability to an acute flare-up from time to time. The condition referred to most often affects young adults, and repeated effusion of fluid into the joint cavity leaves lax ligaments and

known clinical entity not requiring description. There are, however, certain points in relation to treatment which are worthy of study. Painful spasm of the abductors is a symptom especially amenable to hydrotherapy, either in the early stages of a monarticular arthritis or in that occurring in the second hip following treatment of the original arthritis, occasioned, no doubt, largely by the extra stress upon what was the sound joint. A deep bath containing 500 gallons of water at a reasonably high temperature, say 100° F., accompanied by a hot undercurrent douche at 103° F. at low pressure, often reduces pain and spasm considerably, by the lessening of muscle tone in a convenient medium. Patients can sit comfortably in the bath on a chair lowered and raised by hydraulic power.

#### SPONDYLITIS DEFORMANS.

(To illustrate the use of a hot supporting medium, such as would be given by peat.)

By this is meant that condition in which there is ossification of the spinal ligaments, especially anteriorly, with ankylosis of the vertebral column, with or without osteo-arthritis of the hip or shoulder joint (spondylose rhizomélique), and not ordinary arthritis of the vertebræ with bony changes. The resulting deformity is either a "poker back," or "gardener's back."

The etiology is obscure and the gonococcus is commonly held to be responsible in many instances. In cases under personal observation, however, neither history nor clinical signs of this infection could be established, and the complement fixation test was negative.

Trauma, 7,8 appears to play an important rôle in the production of the disease; and seeing that local meningitis and degeneration of the posterior columns have been found, 8 and that in two personal cases there has been spastic paraplegia with increase of cells in the cerebro-spinal fluid with decrease of power to reduce

#### ARTHRITIS

following the bowel evacuation.

#### ARTHROPATHIA PSORIATICA.

(To illustrate the use of radioactive and sulphur baths in the treatment of skin affections.)

This would appear to be a definite clinical entity, and has attracted a certain amount of attention within recent date. The association of arthritis and psoriasis is a little complex, but it may be said that certain subjects who suffer from psoriasis are prone to develop multiple arthritis of the infective variety. That trauma plays a part in some instances is borne out by the histories obtained in personal cases. The importance of treatment lies in the fact that recovery from articular lesions follows dramatically the successful treatment of those of the skin.

Baths of radioactive sulphur waters often produce most beneficial results. The method of application matters less than in other conditions, except perhaps that promotion of sweating in the undamaged skin areas lightens the work of the kidneys.

#### References.

¹ Finck, New York Med. Jnl. and Med. Record, 1923, 728. ² Coates and Raiment, Biochem. Jnl., xviii, 5, 921. ³ Coates, Proc. Roy. Soc. Med., xviii, Sect. Balneology, 13. ⁴ Strangeways, Proc. Roy. Soc. Med., xvii, 12. ⁵ Coates and Gordon, Brit. Med. Jnl., 1923, ii, 561. ⁶ Schmidt and Weisz, Arch. Med. Hydrol., 3, 89. ⁷ Henla, Arch. F. Klin. Chir., 52, 1, 1896. ⁸ Schultz, Bed. Z. Klin. Chir., 27, 363. ⁹ Von Bechterew, Deut. Zeits. f. Nervenh., 1899, xv, 52. ¹⁰ Garrod and Evans, Quart. Jnl. Med., xvii, 66, 171.

liability to fresh effusion especially upon repeated small traumata, such as kneeling produces.

The contrast douche is a useful therapeutic measure to tighten up slack ligaments. Water at considerable pressure is played upon the affected part, alternately hot and cold. The range of temperature varying from 112° F. to 60° F. without gradation.

#### MULTIPLE INFECTIVE ARTHRITIS.

The Plombière douche as an efficient means of bowel . evacuation.)

This group comprises many types, apart from those already noted under other headings. The onset is insidious or acute, and the joints fusiform in character, but the symmetry of their distribution, the initial atrophy of bone, the general metabolic upset usual in atrophic arthritis, are lacking. Moreover, the sex distribution is more even and the age evidence varies between wide limits. Again there is an important distinction pathologically. In an infective arthritis, inflammatory changes in the synovial membrane and capsule produce granulation tissue which spreads to the cartilage, leading to vascularization of the deeper layers, erosion and damage to the underlying bone with adhesions and deposit of new bone, thus ankylosing the joint.

While septic foci are sometimes obvious in some cases, in others one is forced to conclude by the process of elimination that the intestine is at fault. Occasionally, evidence of this is furnished by toxic staining of the skin, and efficient evacuation of fæcal material by means of the Plombière douche improves the general condition wonderfully. The amount injected should not be too large and should be slowly given under low pressure at 100° F. or so. A Tivoli douche at 102° F. applied externally to the abdomen along the course of the colon is given in a recline bath of 99° F. or 100° F.

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## A Note on Blood-Pressure in Diseases of the Skin.

BY W. KNOWSLEY SIBLEY, M.A., M.D.

Physician to St. John's Hospital for Diseases of the Skin.

OR some years I have been greatly interested in the blood-pressure of many of my dermatological cases, both from a scientific and practical standpoint, and I venture to think the subject is worthy of much study and investigation. I have taken the blood-pressure in thirty consecutive cases of marked lichen planus, which I have met with in hospital and private practice, with the following results, as shown in the table printed below. Of these thirty cases thirteen were males, and seventeen females. It is of interest to note the average age of both sexes was the same, namely, fifty-five years.

The average blood-pressure of all was 162; of the males 158.9; and of the females 164.11.

Date.	Name.	Sex.	Ago.	B.P.	Duration and Remarks.
1, 22-4-21	F.C.E.	male	63	200	Severe acute attack. Sugar.
2, 1-2-22 3, 24-4-22 4, 12-5-22 5, 4-9-22	W.B. C.B. M.F. E.G.	male female female female	47 48 52 50	165 150 160 150	1 year 3 months Years 8 years. Lichen obtusus corneus.
6, 10-10-22 7, 1-1-23 8, 1-1-23 9, 8-2-24 10, 24-4-24 11, 18-6-24 12, 14-7-24 13, 6-8-24 14, 8-8-24	D.J.F. J.D.L.	male male male female male male female female female	49 58 23 50 53 56 69 46 23	130 125 125 195 175 135 200 165 145	7 years 6 months 5 weeks 1 year 2 months 7 years 10 years 2
15, 24-9-24 16, 18-10-24 17, 20-10-24	F.M. A.J. F.K.	female female female	65 55 42	195 170 165	2 years 1 year. Lichen hyper- trophicus. 2 years. Lichen hyper- trophicus.

Date.	Name.	Sex.	Age.	B.P.	Duration and Remarks.
18, 24-12-24 19, 5-2-25 20, 3-3-25 21, 11-3-25 22, 18-3-25 23, 25-3-25 24, 25-3-25 26, 25-3-25 26, 25-3-25 27, 22-4-25 29, 22-4-25 30, 22-4-25	F.M. A.B. M.L. W.L. J.H.R. J.F.H.  L.B. M.F. F.G. L.L. J.E.F. A.B.	female female male male male female female female female female female female female female	60 51 60 63 44 64 78 45 63 72 60 67	165 135 175 170 130 140 165 150 165 190 215 160	4 years 2 months 3 months Some years Lichen obtusus corneus 3 weeks, and 13 years ago for 9 months. 12 years 4 months 5 years 12 years 2 years 1 years 1 year

These figures reveal the fact that in most cases of lichen planus the blood-pressure is distinctly high, the average being 162. In a consecutive series of cases of psoriasis in adults, the blood-pressure was also much above the normal, namely, 154.5, and the average age of these cases was 47.4 years. For the purpose of comparison I omitted all cases occurring in children or young adults, in order to have, as far as possible, ages corresponding to those of the lichen cases.

In three cases of para-psoriasis the average bloodpressure was 125 and the average age forty-six, all being men.

In yet another series of cases of marked seborrhæic dermatitis in adults (including only those with distinct areas of dermatitis on the body, and excluding all with only seborrhæa capitis or facialis), the average age was 47.5 years, and the blood-pressure 128.5.

From these statistics it would seem that lichen planus and psoriasis are associated with high blood-pressure, while in seborrhæic dermatitis the blood-pressure is normal. The explanation of the high blood-pressure will be for future investigators to determine.

The figures appear to be of special interest in regard to these last two diseases, and in my opinion should be of great assistance in distinguishing between psoriasis

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6, 10-10-22 7, 1-1-23 8, 1-1-23	1	male male male	49 58 23	130 125 125	corneus. 7 years 6 months 5 weeks
9, 8-2-24 10, 24-4-24 11, 18-6-24 12, 14-7-24	E.W. C.E. W.D.C. E.O.S.	female male male	50 53 56 69	195 175 135 200	1 year 2 months 7 years
13, 6-8-24 14, 8-8-24 15, 24-9-24 16, 18-10-24	M.C. D.C. F.M. A.J.	female female female female	46 23 65 55	165 145 195 170	10 years ? 2 years 1 year. Lichen hyper-
17, 20-10-24	F.K.	female	42	165	trophicus.  2 years. Lichen hyper- trophicus.

## A New Method of Treating Chronic Inflammation of the Nasal Sinuses without Operation.

BY ARTHUR G. DAMPIER-BENNETT, M.R.C.S., L.R.C.P.

T is only after careful consideration that the above title has been adopted. since the classical three states are the classical transfer and the classical transfer are the classical transfer and the classical transfer are the classical t initiated anything new in the way of treatment for any condition is so remote in these days. be that others have information on the subject of this brief report which is unknown to the writer, and, if so, he would be infinitely obliged for details, as it is not his wish to advance claims which cannot be sustained.

It must be admitted at the outset that the claim is based on a single case, but the improvement was so immediate and unequivocal that in any event the publication of the case is justifiable, so that other investigators may be induced to try the method, and its utility or limitations be more rapidly and fairly gauged.

The case was as follows:—

B.D., 55 years of age, a retired army officer, complained of severe headache over frontal and parietal regions, accompanied by sensations as of scalding water being poured over the head. At night he was hardly able to sleep except with the aid of drugs, and then he would be disturbed by dreams of a most terrifying nature. The slightest disturbance arising from noise or contradiction would be followed by an outburst of temper, during which he became almost incoherent with rage. In matters of business he was unable to do anything as he could not concentrate his mind sufficiently to carry out his intentions, nor write a letter without suffering from a feeling of profound exhaustion.

There was a profuse purulent discharge from the back of the

and seborrhæic dermatitis. As is well known, there are a large number of what might be described as "borderland" cases of these diseases, cases which one dermatologist would label psoriasis, and another seborrhæic dermatitis. If my observation is correct, it would seem that there is a distinct difference in the etiology and pathology of these two diseases, and the blood-pressure might at once decide as to which of them is under consideration.

Moreover, if I had a case which I had considered to be psoriasis and found the blood-pressure to be normal, I should seriously question my diagnosis and, vice versa, if I had a case which I believed to be seborrhæic dermatitis and found there was a high blood-pressure, unless there was some other factor to account for it I should reconsider the diagnosis.

The individual blood-pressure depends on so many factors, such as arterio-sclerosis, endocrine functions, etc., that it is often difficult, if not impossible, to determine the cause in many cases, especially so when the pressure is raised. From this it follows there may be exceptions to the general conclusions, and although there are but few in my series of lichen cases, there are some in the psoriasis ones.

As is a well-known fact, psoriasis generally develops much earlier in life than lichen. It has therefore been a little difficult to compare these two diseases, and it has only been possible to do so by excluding all cases in children and young adults. The result is that the average ages of my two series are about the same, viz. 47.5 years.

The question as to why lichen planus, for instance, should be associated with or especially liable to occur in people with a high blood-pressure is at present purely problematical, but possibly a perverted endocrine function will be found to be the explanation of this sequel of events.

# A New Method of Treating Chronic Inflammation of the Nasal Sinuses without Operation.

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Hon. Physician, Victoria Hospital, Sidmouth.

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B. D., 55 years of age, a retired army officer, complained of severe headache over frontal and parietal regions, accompanied by sensations as of scalding water being poured over the head. At night he was hardly able to sleep except with the aid of drugs, and then he would be disturbed by dreams of a most terrifying nature. The slightest disturbance arising from noise or contradiction would be followed by an outburst of temper, during which he became almost incoherent with rage. In matters of business he was unable to do anything as he could not concentrate his mind sufficiently to carry out his intentions, nor write a letter without suffering from a feeling of profound exhaustion.

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nostrils which was being constantly swallowed. Examination of the nose by Mr. C. Gill-Carey had disclosed extensive ethmoid disease, the presence of polypi, and infection of all the nasal sinuses. Pyorrhœa was present, and also multiple peripheral neuritis. There

was no evidence of either syphilis or spinal cord disease.

Operation was advised, but owing to his morbid dread of anæsthesia he cast about for some means of avoiding this procedure, and as a result of some correspondence, he came under my care, the feeling being that, while such treatment as I suggested might do some good, at least it could do no harm. With the exception of the left antrum only, transillumination gave positive results; that is to say, the left antrum was not absolutely opaque.

I decided to treat the condition by means of ionization, but at the outset was met with difficulty in getting suitable electrodes. I had ultimately to make them for myself. They consisted of copper wires covered in such a way that the application of the medicament was not interfered with, while the points were properly protected.

I decided to use copper sulphate as the ionizing agent.

The patient was laid on the couch after having his coat and collar removed, the active electrodes were inserted up the nostrils for a distance of, approximately, three inches, and the current turned on. Although only one m.a. was registered, the pain was so severe that the sitting had to be abandoned in something less than three minutes. I had not considered it necessary to employ a local anæsthetic. I regretted this. The next sitting, which took place the following morning, was infinitely more disturbing, for although the cocaine enabled the application to be borne without pain, and a larger current was employed, there followed a severe spasm of the glottis which was only relieved by the injection of a quarter of a grain of morphia. I passed an anxious few minutes.

The next morning, having learnt wisdom by experience, I guarded against both: pain by the use of cocaine, and against the spasm of the glottis by giving a very small current rising only to a maximum of one m.a. for a very brief period towards the end of the

sitting.

It was noteworthy that, in spite of the initial discouraging experiences, the patient was after each treatment quite sensible of an improvement having taken place, the most striking being an immediate cessation of the terrifying dreams and an amelioration

of the headaches.

From that time forward there was a progressive improvement in his condition. The discharge ceased by degrees, the headaches disappeared, his nervous and excitable state of mind became so much better that a serious motor accident in which he was involved had very little effect upon him, and he was able to write and talk about it the following day as if nothing very untoward had taken place; at the same time he noticed that he was able to write letters and read books with a degree of concentration which had been absent for months; and that he was able to remember what he read or wrote about without undue effort:

#### NASAL SINUS INFLAMMATION

The points in the case calling for comment are as follow:—

- (1) The extreme sensitiveness to pain.
- (2) The spasm of the glottis.
- (3) The immediate improvement.

The sensitiveness to pain was, I imagine, due to the prolonged inflammation having rendered the tissues particularly vulnerable and susceptible to influences which in their normal condition would be practically unnoticed. The use of a little cocaine was all that was necessary to make the application easily tolerable. After the first two or three treatments this became unnecessary even when a current of ten m.a. was employed.

The spasm of the glottis occasioned considerable anxiety for a few minutes, and I think was caused either by reflex action following the employment of too strong a current, or from the direct irritation of some of the medicament flowing down the pharynx, and over, and possibly into, the upper opening of the larynx. By employing a weaker current and a very much weaker solution all trouble was subsequently avoided, though both current and strength of solution were increased after a few more sittings.

The improvement in every symptom was immediate; had this not been the case, I doubt whether either the patient or myself would have been inclined to persevere in face of the very unpleasant experiences of the first two sittings.

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11.9.h.p. Morris-Cowley, £162 10s.; the 11-h.p. Clyno, £162 10s.; the 8.9.h.p. Renault, £219; the 9-h.p. Rover, £185; the 11.4-h.p. Standard, £200; the 10-h.p. Singer, £195; the 11-h.p. Wolseley, £225.

In the second class the following are certainly worthy of consideration: the 11·8-h.p. A.-C., £300; the 12-h.p. Austin, £350; the 11·4-h.p. Citroen, £205; the 20·9-h.p. Chrysler, £335; the 15·6-h.p. Crossley, £395; the 16-h.p. Cubitt, £345; the 12-h.p. Darracq, £425; the 12-h.p. De Dion, £450—they have also a lower-powered car at under £300; the 10·5-h.p. Fiat, £280; the 12-h.p. Humber, £440; the 20-h.p. Maxwell, £288; the Morris-Oxford, £260; the 13-h.p. Overland, £270; the 13·9-h.p. Renault, £329; the 13·9-h.p. Standard, £345; and the 12-h.p. Unic, £475.

A long list to consider. Baldly to label every one of these as suitable is probably as misleading as to damn them as bad. They all have tantalizing and elusive points between the two. Many of us, holding to the moorings of tradition, feel that we should help the industries of our country; still, I have felt in duty bound to mention a few foreign and American makes, as some might like to consider them on account of their reputation and price, though I am convinced that British motors deserve support, not only for the really good reason just given, but even more on account of their own merit.

The reliability and general capabilities of the various cars listed is unquestionable, yet the flair for spotting the best goods is hard to acquire. In some instances the experience gained in obtaining this knowledge has been costly. The question of price is, of course, an important one. Is it wiser not to grudge a little extra when writing the initial cheque for the purchase? Plain speaking is my privilege, and the object of my article is to consider arguments both for and against the spending of a little extra in the first place. A popular slogan is "Good value for money." The cheap cars are that. Contrariwise, the reverse also applies to a certain extent, "Little money, little value." Why is there so much difference in the price for different cars of similar size and horse-power? Quantity production accounts for a good deal. If a large

# Points in Car Selection for Doctors.

## Based on Actual Road and Workshop Experiences.

BY OUR MEDICAL MOTORING CORRESPONDENT.

O-DAY we are rich in useful and varied makes of cars, so much so that the searcher for precise facts and accurate deductions may be rather bewildered in reducing the list down to the most suitable one. In the last fifteen months the writer has ridden in some thirty different makes, and personally taken over twenty for thorough road tests. This wealth of material it is now proposed to consider in detail, eliminating, as far as possible, the familiar or common to all facts, but not unduly subordinating points essential in coming to a decision. After the war many revolutionary innovations were introduced, most of which were more of interest than actual value. The result was a reaction against anything new. This probably damaged much bad work, and, perhaps, a little good. All upheavals do this. At any rate the cars recommended for inspection at the approaching Olympia display are free of engineering eccentricities. We, as medical men, want reliability and absence of complications in our motor vehicles. In this article it is proposed to deal only with the smaller type of car, i.e. (1) those costing about £200 and under, and (2) those priced above £200 but not more than about £400. The larger and more expensive cars will be dealt with in a further article.

The first category includes the 7-h.p. Austin, £149; the 10-h.p. Ariel, £168; the 7.5-h.p. Citroen, £145; the 7-h.p. Jowett, £150; the

11.9-h.p. Morris-Cowley, £162 10s.; the 11-h.p. Clyno, £162 10s.; the 8.9-h.p. Renault, £219; the 9-h.p. Rover, £185; the 11.4-h.p. Standard, £200; the 10-h.p. Singer, £195; the 11-h.p. Wolseley, £225.

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A long list to consider. Baldly to label every one of these as suitable is probably as misleading as to damn them as bad. They all have tantalizing and elusive points between the two. Many of us, holding to the moorings of tradition, feel that we should help the industries of our country; still, I have felt in duty bound to mention a few foreign and American makes, as some might like to consider them on account of their reputation and price, though I am convinced that British motors deserve support, not only for the really good reason just given, but even more on account of their own merit.

The reliability and general capabilities of the various cars listed is unquestionable, yet the flair for spotting the best goods is hard to acquire. In some instances the experience gained in obtaining this knowledge has been costly. The question of price is, of course, an important one. Is it wiser not to grudge a little extra when writing the initial cheque for the purchase? Plain speaking is my privilege, and the object of my article is to consider arguments both for and against the spending of a little extra in the first place. A popular slogan is "Good value for money." The cheap cars are that. Contrariwise, the reverse also applies to a certain extent, "Little money, little value." Why is there so much difference in the price for different cars of similar size and horse-power? Quantity production accounts for a good deal. If a large

number are turned out and sold, the large item of overhead charges is divided up, and thus there is less to be debited for that item to each individual car. Finish and fitting of component parts account for a great deal. Take such an important part as the crankshaft: whether for a four-cylinder engine, made for two, three, or four bearings, it is always, of course, of good quality steel, but the fitting-in may be expensive or the reverse. depending on whether the journals and bearings are perfectly fitted and burnished, or whether they are more or less approximately fitted and allowed to bed in through wear in use. There is a great difference. In the cheaper models the latter is more often the case. If one could gather a symposium of the opinion of car dealers, they would all give one point for best sellersthat is, you must appeal to the lady passengers, which can be translated, I am told, into providing a body with good lines and comfortable seats. On these grounds many cars should be popular. But I do not propose to go into the question of car bodies; any carriage can be fitted to suit the requirements of the purchaser. Some like to descend from their vehicle in immaculate tophat, etc., and to them the saloon, landaulette, or coupé appeals, while others prefer the ordinary open fourseater with hood and side curtains, which give complete protection in bad weather when desired, and at other times plenty of fresh air. There is one point in which few cars come up to my ideal. Accessibility is a matter which some, and, I think, I may even say a good many manufacturers, pay little regard to. I wonder why designers fail to recognize that carburettors, magnetos, self-starters, and valves must at times be get-at-able? Carburettor jets should be removable without taking down the whole instrument, contact breakers adjustable without lifting the magneto bodily off its bed, valve covers taken off without lifting out other portions of the car's anatomy, and self-starters without

dropping the shield to undo the nuts that fix the self-starter in position. Another point: accumulators need attention if their healthy existence is to be of any duration, and yet on such a well-known and really good car as the 14-h.p. Sunbeam, the front cushion has to be lifted out and the whole sliding seat turned back in order to get at the footboards beneath which they are situated. It may be good for sellers of storage batteries, it is not good for the average car owner; most will neglect to keep the electrolyte over the plates if they have so much trouble to perform this simple, but needful job. Such neglect is bound to result in accumulator trouble.

Water circulation by pump is regarded with favour, especially now that the water-propeller is so reliable. To prevent leakage a gland is fixed over the pump spindle, and this occasionally requires screwing; on really one of the best twelves, the Austin, in order to carry this out, the radiator has to be taken down. Another instance of lack of thought, the oil sump on all cars needs emptying after a certain number of miles; to do so on the Crossley means undoing a plate under the crank case, though in their book of words they say there is a single nut which will permit the job to be done. Getting under the car to unscrew half a dozen nuts and remove a plate is an acrobatic, unpleasant job.

With respect to the smaller powered vehicles, the modern explosion engines, on account of their present-day efficiency, do give out an enormous horse-power considering their size. Of course, to obtain this output their revolutions must be kept up. This incessant "collar work" may mean a shorter engine life—anyway, an earlier date when an overhaul becomes needful. This is especially the case when a large-size body is fitted. The tendency to mount, say, heavy coupé bodies on a small engine chassis, rather suggests attempting to put the quart into the pint pot. Tests

number are turned out and sold, the large item of overhead charges is divided up, and thus there is less to be debited for that item to each individual car. Finish and fitting of component parts account for a great deal. Take such an important part as the crankshaft: whether for a four-cylinder engine, made for two, three, or four bearings, it is always, of course, of good quality steel, but the fitting-in may be expensive or the reverse, depending on whether the journals and bearings are perfectly fitted and burnished, or whether they are more or less approximately fitted and allowed to bed in through wear in use. There is a great difference. In the cheaper models the latter is more often the case. If one could gather a symposium of the opinion of car dealers, they would all give one point for best sellersthat is, you must appeal to the lady passengers, which can be translated, I am told, into providing a body with good lines and comfortable seats. On these grounds many cars should be popular. But I do not propose to go into the question of car bodies; any carriage can be fitted to suit the requirements of the purchaser. Some like to descend from their vehicle in immaculate tophat, etc., and to them the saloon, landaulette, or coupé appeals, while others prefer the ordinary open fourseater with hood and side curtains, which give complete protection in bad weather when desired, and at other times plenty of fresh air. There is one point in which few cars come up to my ideal. Accessibility is a matter which some, and, I think, I may even say a good many manufacturers, pay little regard to. I wonder why designers fail to recognize that carburettors, magnetos, self-starters, and valves must at times be get-at-able? Carburettor jets should be removable without taking. down the whole instrument, contact breakers adjustable without lifting the magneto bodily off its bed, valve covers taken off without lifting out other por-tions of the car's anatomy, and self-starters without

gradually, holds when it is home, that is, does not slip, and when out does not spin, that is, a stop is fitted. The fact that a single-plate, dry, fabric-faced one is used on the new Rolls-Royce supports the idea that this is as good as any. On gradients, when it is desired to get back from the first speed into the second the want of a clutch-stop is felt, and without it the length of time needed to effect a change without a jarring noise renders the change-up useless. The Rolls have a stop that few others of this type have. The Crossley, Darracq, Sunbeam, and Austin have none. The Wolseley has a multiple disc type, with steel plates running in oil; it also permits of comfortable gear changing, but on starting from the cold the plates rather stick; in fact, the only way I could get into first speed when starting was after the engine had run to switch off, depress the clutch pedal, then slip into gear, and still keeping the clutch out, restart the engine, and then gently let in the clutch; of course, after running, when the clutch oil was warmed up, this was not needed. As to the now fashionable front-wheel brakes, with internal expanding shoes, they are certainly of value, but their chief factor is that if they are absent, and it is desired to dispose of the car, that fact will increase the difficulty in effecting a sale, as well as the chance of obtaining a decent price. On the Chrysler, external bands are used for the front-wheel brakes; when they get wet, they seem rather inclined to skid.

As to the final drive, some, like the A.-C., use an overhead worm, the Austin, helical gear, and the Rover, on their 9-h.p., underneath worm. I do not think it matters which, provided the makers can be relied upon to turn out good work, and all those I have named can be trusted to do that. In other words, their family history is good. That counts for much in the motor world.

Among the smaller cars which gave satisfaction on test, I must mention the 7-h.p. Austin; it belongs to a

of cars where the reverse is done, such as the Sunbeam, 12-h.p. Austin, Darracq, Cubitt, Morris Oxford, and Unic, in all of which there is a good reserve of power, make me rather predisposed in favour of vehicles with an engine of not under 12 h.p. The feeling of such a reserve of power is certainly a satisfaction. It will probably be noted that all the cars mentioned, except the Chrysler, have four-cylindered engines. point that may be raised is whether a little more might be spent if one of the dearer vehicles was thought of, and a six-cylinder be purchased instead of a four. confess that the six-cylinder has a torque more on a par with that of a steam engine, and that it has advantages to the owner who dislikes gear changing. Still. gears are placed in a car for use, and with most up-todate cars with a single-plate fabric-lined clutch, gear change is silent and without trouble. I therefore suggest that a good four-cylinder is for most of us, to whom expense is a consideration, the best proposition. It may not be quite as silent, but it is cheaper, quite efficient, and capable of going anywhere.

A feature in design that appeals to many is an absence of intriguing points—that is, simplicity, the straightforward usual road of construction and production, all that has passed through the fire of use and come out, if not pure gold, still justified by the result of use, not the result of a mission of discovery in the side lanes of automobile research. To some side-by-side valves and the single-plate clutch appeal, such as is found on the Austin, Unic, Fiat, Cubitt, Morris, and Crossley. The question of the advantage of overhead valves bristles with diversity of opinion. Provided the tappets are kept adjusted, they are satisfactory, and have been proved so, on the Sunbeam, Darracq (which is similar in design to the Sunbeam), Standard, small and large Rover, and Wolseley.

About clutches, I only ask for one that engages

### Practical Notes

#### Encephalitis Lethargica and Herpes.

C. Levaditi makes the interesting suggestion, as the result of experiments on monkeys and rabbits, that the virus which causes herpes and that which causes epidemic encephalitis belong to the same group. He attributes the fact that herpes occurs more often than the other disease to the greater infectivity of the skin, mucous membranes, and cornea. The virus has apparently a special affinity for nerve tissue.—(Paris Médical, June 27, 1925, p. 573.)

#### Treatment of Vaginal Leucorrhæa.

A. Landeker describes a method of treatment of vaginal leucorrhoea by ethyl chloride which, in his hands, has shown successful results. The ethyl chloride is sprayed into the vagina through an opaque glass speculum, and by moving it to and fro the fluid is kept in contact with the whole of the vaginal canal for one or two minutes, when the residue is sponged out of the vagina to protect the vulva. The ethyl chloride not only acts as a disinfectant, but the cold apparently influences the metabolism of the affected cells of the lining of the canal.—(Archiv. für Gynakologie, June 3, 1925, p. 367.)

#### Treatment of Chancroid Buboes.

MM. Nicolas and Lacassague have cured eleven out of fourteen cases of chancroid buboes by the injection of the patient's own blood, and the pain of the inflammation in particular was relieved after each injection, sometimes within a quarter of an hour. Five or six injections were necessary, 5 c.cm. of blood being withdrawn and injected intramuscularly into the thigh at the first injection, and 10 c.cm. at subsequent injections, at intervals of two or four days.—
(Journal de Médicine de Lyon, May 20, 1925, p. 287.)

#### Conservative Treatment of Septic Tonsils.

A. M. Rooker says that the first enthusiastic reports on the therapeutic action of X-rays and radium on the tonsils has been modified by later observers, and while a certain percentage of tonsils treated by skilled operators may undergo more or less atrophy, we cannot say how permanent this result may be; the method cannot take the place of surgery, as was at first predicted. Recently, in employing suction as a diagnostic measure, the author has noted that patients reported marked improvement in their condition after his examination, and, in consequence, he suggests suction as a therapeutic as well as a diagnostic measure. In applying suction the tonsil is "vacuum cleaned," the crypts are opened widely, pus and debris extended, and as a result the patient who has been suffering from a backache, stiff neck, arthritis, etc.,

class which stands apart—it is not much larger, nor does it occupy more space, than a sidecar, but it provides comfortable seating and protection from weather, and should give efficient service; for a small engine its performance on the road is good, at thirty miles it held the road well, at more it bounced a bit. For those who want a somewhat larger vehicle, the 9-h.p. Rover is a sturdy, serviceable mount, which, on my test run of 300 miles, did easily forty miles an hour, and showed itself a good hill-climber.

The little Renault I found quite satisfactory as a three-seater, but I question whether it is powerful enough to carry, anyhow in hilly districts, a coupé body. About the Clyno and Morris cars, as types of the cheaper but more powerful vehicle, I can only say that their road behaviour is exemplary, and that they are certainly marvellous value for the money asked; of course, after wear they become rather noisy. Both the Standards are also very good propositions. The Cubitt is more of a family car; it behaved well on the road, and I found its old type of leather cone clutch satisfactory, though predisposed to fierceness.

The Darracq, which is a sort of twin sister of the Sunbeam, is of course satisfactory, but, built in France, and in spite of the McKenna duties, is much cheaper than it.

All the second class of cars easily did forty miles, climbed hills without trouble, and had satisfactory brakes.

#### PRACTICAL NOTES

if undisturbed, remains in place for from ten days to two By the end of a month the entire eroded area is covered, ... ne cervix normal in appearance.—(Journal of the American al Association, August 8, 1925, p. 418.)

#### Therapeutics of Quinidine.

H. Riecker says that since the introduction of quinidine as a peutic agent in the treatment of certain phases of heart disease rey in 1917, there have been many and varied estimations of value, considerable experimentation, particularly by Lewis, to ount for its action, and divergent results from its clinical ... ilication. Dr. Riecker comes to the conclusion that the use of nidine sulphate is justified and seems indicated in all cases of ii ricular fibrillation, except in those in which there are signs ... recent embolism, marked decompensation of the heart, or early . pearance of the symptoms of cinchonism. The careful manageent of cases with regard to exercise, mental excitement, and fever aring quinidine administration greatly facilitates the favourable ection of the drug. It is most effectual when given continuously hrough the day and night, as suggested by Lewis.—(American Journal of the Medical Sciences, August, 1925, p. 205.)

#### Treatment of General Paralysis.

A. Marie reports the results of various methods of treating general paralysis of the insane. In 120 patients who were treated by injections of tuberculin, sterilized milk or nucleinate, associated with bismuth, a remission of the disease occurred in 50 per cent. of the cases, which has persisted for three years. 100 cases were treated by the inoculation of malaria, and in these there was a remission in 5 per cent. and an improvement in 15 per cent. of the cases. Fifteen patients were treated by the inoculation of relapsing fever, and a remission took place in nine of them; in these cases the disease is apparently stabilized, if not cured.—(Bulletin de la Société Médicale des Höpitaux, June 12, 1925, p. 898.)

Treatment of Impetigo.

MM. Lemoine and Girard recommend, in the treatment of impetigo, first, the removal of all crusts, and then the application with a gauze swab of the following :-

g. 400 (5xii) Aq. camphor - g. 200 (3vi) Aq. destillat. - g. 7 ( 5iss.) Cupr. sulphat. g. 2 (grs. xxx)

Or the following ointment may be used, all crusts having

similarly been removed first:-- g. 40 (3x) Vaseline - g. 20 (5v) Adeps. lan. hydros. g. 3 (grs. xlv) Cupr. sulphat. g. 0.75 (grs. xii)

-(Journal des Praticiens, August 15, 1925, p. 536.)

X

frequently reports marked improvement next day. Some of Dr. Rooker's patients have kept their improvement for five months with only three treatments. The improvement is not suggested as permanent, but the method, says the author, is worthy of a trial. He emphasizes the importance of a careful examination, the use of palliative measures, not promising too much in border-line cases, eliminating other sources of infection, and, when operating, to remove the tonsil entire, as a small stub can cause as much harm as the whole tonsil.—(New York State Journal of Medicine, July, 1925, p. 828.)

#### Granulomata caused by Teeth Abscesses.

E. M. Daland points out that apical abscesses of long standing occasionally break through to the surface of the skin and produce lesions that may be confused with cancer. The lesion shows an inflammatory induration, a central ulceration, and has a tendency to become crusted over. The discharge from the central ulceration may be so slight that it is not noticed. The lesion may be so far distant from the teeth that the possibility of its relation to the teeth may not be considered. Such lesions, however, do not respond to the usual dosage of radiation—a point to be kept in mind in the diagnosis of doubtful cases. Dr. Daland reports four cases of infectious granulomata due to this cause, three of which were diagnosed at first as cases of skin cancer. All four cases were cured by the extraction of the affected teeth.—(Boston Medical and Surgical Journal, August 6, 1925, p. 258.)

#### A Simple Method of Cauterization of the Cervix Uteri.

S. F. Abrams states that lesions of the cervix uteri are such common precursors of more serious conditions that their successful treatment cannot be too greatly stressed. He quotes Howard Kelly in regard to the treatment of lacerations and erosions of the cervix, who said: "The one method of treatment is the actual cautery; with this process available, I but rarely operate any more for lacerations of the cervix." Treatment of such lesions have been carried out by chemicals, by the application of radium, by surgery, and by the cautery. Dr. Abrams has devised a simple method of cauterization, which he describes as follows: Uterine dressing forceps are heated to a cherry-red heat in a flame, and placed in the cervical canal, which is first prepared by gentle dilatation and cleansing of all discharge. It is essential that the thick mucus be cleaned away, as this cools the forceps before they have accomplished their purpose. A complete circle of tissue is thus destroyed, less deeply at the internal os, and more deeply at the external os, because the thin point of the forceps cools more quickly than the thickened shank. One cannot destroy too much tissue in this manner, unless it is done by repeated applications, and in this respect the method is safer than the electrocautery method. The forceps are left in place for two or three seconds only, and on their removal a white area of necrotic tissue is seen. An exudate is thrown out, and within the next day or two a necrotic plug is seen in the cervical canal.

#### PRACTICAL NOTES

which, if undisturbed, remains in place for from ten days to two weeks. By the end of a month the entire eroded area is covered, and the cervix normal in appearance.—(Journal of the American Medical Association, August 8, 1925, p. 418.)

#### Therapeutics of Quinidine.

H. H. Riecker says that since the introduction of quinidine as a therapeutic agent in the treatment of certain phases of heart disease by Frey in 1917, there have been many and varied estimations of its value, considerable experimentation, particularly by Lewis, to account for its action, and divergent results from its clinical application. Dr. Riecker comes to the conclusion that the use of quinidine sulphate is justified and seems indicated in all cases of auricular fibrillation, except in those in which there are signs of recent embolism, marked decompensation of the heart, or early appearance of the symptoms of cinchonism. The careful management of cases with regard to exercise, mental excitement, and fever during quinidine administration greatly facilitates the favourable action of the drug. It is most effectual when given continuously through the day and night, as suggested by Lewis.—(American Journal of the Medical Sciences, August, 1925, p. 205.)

#### Treatment of General Paralysis.

A. Marie reports the results of various methods of treating general paralysis of the insane. In 120 patients who were treated by injections of tuberculin, sterilized milk or nucleinate, associated with bismuth, a remission of the disease occurred in 50 per cent. of the cases, which has persisted for three years. 100 cases were treated by the inoculation of malaria, and in these there was a remission in 5 per cent. and an improvement in 15 per cent. of the cases. Fifteen patients were treated by the inoculation of relapsing fever, and a remission took place in nine of them; in these cases the disease is apparently stabilized, if not cured.—(Bulletin de la Société Médicale des Hôpitaux, June 12, 1925, p. 898.)

#### Treatment of Impetigo.

MM. Lemoine and Girard recommend, in the treatment of impetigo, first, the removal of all crusts, and then the application with a gauze swab of the following:—

R. Aq. camphor - - - g. 400 (5xii)
Aq. destillat. - - g. 200 (5vi)
Cupr. sulphat. - - g. 7 (5iss.)
Zinc sulphat. - - g. 2 (grs. xxx)

Or the following ointment may be used, all crusts having similarly been removed first:—

R. Vaseline - - - g. 40 (5x)
Adeps. lan. hydros. - - g. 20 (5v)
Sod. bibor. - - - g. 3 (grs. xlv)
Cupr. sulphat. - - - g. 0.75 (grs. xli)
-(Journal des Praticiens, August 15, 1925, p. 536.)

frequently reports marked improvement next day. Some of Dr. Rooker's patients have kept their improvement for five months with only three treatments. The improvement is not suggested as permanent, but the method, says the author, is worthy of a trial. He emphasizes the importance of a careful examination, the use of palliative measures, not promising too much in border-line cases, eliminating other sources of infection, and, when operating, to remove the tonsil entire, as a small stub can cause as much harm as the whole tonsil.—(New York State Journal of Medicine, July, 1925, p. 828.)

#### Granulomata caused by Teeth Abscesses.

E. M. Daland points out that apical abscesses of long standing occasionally break through to the surface of the skin and produce lesions that may be confused with cancer. The lesion shows an inflammatory induration, a central ulceration, and has a tendency to become crusted over. The discharge from the central ulceration may be so slight that it is not noticed. The lesion may be so far distant from the teeth that the possibility of its relation to the teeth may not be considered. Such lesions, however, do not respond to the usual dosage of radiation—a point to be kept in mind in the diagnosis of doubtful cases. Dr. Daland reports four cases of infectious granulomata due to this cause, three of which were diagnosed at first as cases of skin cancer. All four cases were cured by the extraction of the affected teeth.—(Boston Medical and Surgical Journal, August 6, 1925, p. 258.)

#### A Simple Method of Cauterization of the Cervix Uteri.

S. F. Abrams states that lesions of the cervix uteri are such common precursors of more serious conditions that their successful treatment cannot be too greatly stressed. He quotes Howard Kelly in regard to the treatment of lacerations and erosions of the cervix, who said: "The one method of treatment is the actual cautery; with this process available, I but rarely operate any more for lacerations of the cervix." Treatment of such lesions have been carried out by chemicals, by the application of radium, by surgery, and by the cautery. Dr. Abrams has devised a simple method of cauterization, which he describes as follows: Uterine dressing forceps are heated to a cherry-red heat in a flame, and placed in the cervical canal, which is first prepared by gentle dilatation and cleansing of all discharge. It is essential that the thick mucus be cleaned away, as this cools the forceps before they have accomplished their purpose. A complete circle of tissue is thus destroyed, less deeply at the internal os, and more deeply at the external os, because the thin point of the forceps cools more quickly than the thickened shank. One cannot destroy too much tissue in this manner, unless it is done by repeated applications, and in this respect the method is safer than the electrocautery method. The forceps are left in place for two or three seconds only, and on their removal a white area of necrotic tissue is seen. An exudate is thrown out, and within the next day or two a necrotic plug is seen in the cervical canal,

## Preparations, Inventions, Etc.

#### RECENT SPECIALITIES.

(London: Messrs. Parke, Davis & Co., Beak Street, Regent Street, W.1.)

Messrs. Parke, Davis & Co. have sent us samples of a number of

specialities which they have recently introduced.

Dibromin is a crystalline synthetic compound, put up in convenient capsules, which is found to contain 56 per cent. of bromine in loose combination; when a solution comes in contact with infected tissues the bromine is slowly liberated, and has a powerful germicidal action.

Olgar is an agreeably-flavoured preparation of liquid paraffin emulsified with agar, which soothes the intestinal mucosa, softens

the intestinal contents, and facilitates peristalsis.

Silver Nitrate Solution Capsules are a convenient means of having at hand a 1 per cent. solution of silver nitrate for application tothe eyes of infants at birth.

Storaxol is an ointment containing storax, resorcin, menthol, camphor, carbolic acid (5 per cent.), and precipitated sulphur, in an emollient base; it should prove valuable in a great variety of troublesome skin conditions, and is particularly soothing.

#### OTALGAN.

(London: Messrs. H. R. Napp, Ltd., 3 & 4 Clement's Inn, W.C.2.)

The name otalgan is given to a preparation of 5 per cent. phenyldimethyl pyrazolon in glycerine. It is recommended for the conservative treatment of inflammation of the middle ear and complications of the ear arising from coryza, influenza, and other infectious diseases, the favourable effect being due to osmosis, the solution permeating the tympanum. We have found the preparation valuable in the early stages of inflammation of the middle ear, particularly in relieving the pain.

#### CODLIVEY.

(London: Messrs. John Bell & Croyden, Ltd., Standard Works, Lawrence Road, Tottenham, N.15.)

Codlivex is a preparation in tablet form, incorporating the active principle of cod-liver oil with a chocolate base so as to overcome the unpalatability which is the only disadvantage of that valuable remedy. Iscovesco showed some years ago that the medicinal

## Reviews of Books.

Recent Advances in Medicine: Clinical, Laboratory, Therapeutic. By G. E. BEAUMONT, M.D., F.R.C.P., and E. C. Dodds, Ph.D., M.B., B.Sc. Second edition. Pp. 364, and 40 illustrations. London: J. and A. Churchill. 10s. 6d. net.

This excellent little book accomplishes successfully exactly what it sets out to do: it gives an epitome of clinical, laboratory, and therapeutic methods recently introduced into medicine, in sufficient detail to be useful practically, but without overloading the descriptions with minutiæ. The fact that a second edition has appeared within a few months of the publication of the first shows that the book meets a want felt by the practitioner who desires to use the latest methods. To this new edition a number of important additions have been made: the views held as to the mode of action of insulin are discussed, and recent work on alimentary glycosuria is included; fresh additions have been made to the methods for investigating the pigmentary functions of the liver; the methods of gastric analysis have been more fully described; and a special chapter has been written on the important subject of the Dick reaction for scarlet fever. The book is thus completely up to date, and can be recommended cordially to every practitioner of medicine.

The Extra Pharmacopæia. By W. H. MARTINDALE, Ph.D., and W. W. Westcott, M.B. Vol. II. Pp. xlii and 728, foolscap 8vo. London: H. K. Lewis & Co., Ltd. 20s. net.

The eighteenth edition of Vol. I of the Extra Pharmacopæia appeared in October, 1924, and it is now followed by the corresponding edition of Vol. II. There is only a difference of forty pages between this edition and the previous one, but the subject-matter has been altered and extended in various directions. Though the burden of the work leans towards the pharmacologist and pure chemist, it contains many subjects which must appeal to the medical man. Such are animal organotherapy, sterilization, ionto-phoresis, radiology, and bacteriological and clinical notes in reference to special diseases. There is also a complete and compact list of British spas and climatic health resorts, coupled with a request for medical men to recommend these in preference to foreign ones. As in previous editions, a complete index and a posological table are furnished. The whole work is thoroughly reliable in every way.

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#### ALMATA.

(Norwich: Messrs. Keen, Robinson & Co., Carrow Works.)

Almata is an infant food which, the manufacturers state, contains all the vitamins essential for growth and freedom from the various deficiency diseases. With almata, therefore, no food adjuncts, orange juice, etc., are necessary in infant feeding. It contains 27.0 per cent. fat, 12.5 per cent. protein, 54.6 per cent. carbohydrates, 2.6 per cent. mineral salts, and 3.3 per cent. water, its chemical composition closely resembling that of mother's milk. The food is very palatable, and most suitable both for infants and for adults.

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CHARTERED SOCIETY OF MASSAGE AND MEDICAL GYMNASTICS.
(London: 157 Great Portland Street, W.1.)

The Chartered Society of Massage and Medical Gymnastics have issued a new register of their members, and also a small brochure prepared for circulation among the members of the medical profession with the object of familiarizing them with the aims of the Society and the significance of the letters C.S.M.M.G. after the name of a masseur or masseuse. The members of the Society do not undertake any case of massage except under the direction of a registered medical practitioner, and bind themselves not to advertise except in recognized medical and nursing papers, and not to sell-goods to patients in a professional capacity. The Society deserves the support of every medical practitioner in keeping up the high professional standard of its members.

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ticularly in those diseases malnutrition which are becoming enormously evident in the stress of modern life, combined with residence in smoke-laden atmospheres.

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liver is attended by far more penetrable immediate results.

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any other source in the This new radio-active principle. vehicle of treatment is supplied by Sparklets Limited, under the ægis of the British Oxygen Co., Ltd., and it has been subjected to the highest tests by the most eminent authorities in this country and in France.

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## APPOINTMENTS.

No charge is made for the insertion of these notices: the necessary details should be sent before the 14th of each month to The Editor, THE PRACTITIONER, Howard Street, Strand, London, W.C. 2, to secure inclusion.

- ANDERSON, D. I., M.B., Ch.B.Edin., appointed Certifying Factory Surgeon under the Factory and Workshop Acts for Hoddesdon, Herts.
- BICKERTON, H. R., M.B., B.Ch. Camb., appointed Assistant Surgeon to St. Paul's Eye Hospital, Liverpool.
- CAPON, N. B., M.B., Ch.B.Liverp., has been appointed Hon. Physician to the Royal Southern Hospital, Liverpool.
- CLEMENTS, ERNEST, M.B., B.Ch., B.A.O. Belfast, appointed Visiting Physician to the Southburn Convalescent Home for Children, near Driffield.
- CONYNGHAM, R. S., L.R.C.P. and S. Irel., appointed Certifying Factory Surgeon under the Factory and Workshop Acts for Snatth, West Riding.
- DAYIES, A. E. C., M.R.C.S.. L.R.C.P., appointed House-Surgeon to Westminster Hospital.
- DUNLOP, H. A., M.R.C.S., L.R.C.P. Lond., appointed House-Physician to Westminster Hospital.
- GORST, P. E., M.D.Liverp., M.R.C.S., L.R.C.P.. appointed Hon. Surgeon to St. Paul's Eye Hospital, Liverpool.
- GRAYES, B., M.R.C.S., L.R.C.P., appointed Hon. Surgeon to St. Paul's Eye Hospital, Liverpool.
- HAMILTON, NORAH, M.B., B.S. Durh., appointed Anaesthetist to Royal Infirmary, Sunderland.
- HUGHES, E. N., L.R.C.P., M.R.C.S., D.O.M.S.Eng., appointed Assistant Surgeon to St. Paul's Eye Hospital, Liverpool.
- LAIRD, JEAN P., M.B., Ch.B. St. And., Junior Resident Medical Officer, East House and Hospital, Dundec.
- McDONALD, J. R., M.B., Ch.B.Ed.. appointed Certifying Factory Surgeon for the Durham District, Co. Durham.
- MILNE, J., M.B., Ch.B., appointed Deputy Anæsthetist to Royal Infirmary, Sunderland.
- MOLLOY, H. H., M.D. Dub., appointed Certifying Factory Surgeon for the Helsby District, Co. Chester.
- MOORHOUSE, I. H., M.B., Ch.B. Liverp., appointed Hon. Assistant Surgeon to St. Paul's Eye Hospital, Liverpool.
- MORTIS, R. H., M.R.C.S., L.R.C.P. Lond., has been appointed House-Surgeon, Hertford County Hospital.

- MUIR, T. J., L.R.C.P. and S. Edin, L.R.F.P.S. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Pickering District (North Riding).
- PLUMMER, F. C., M.D. Liverp., appointed Hon. Surgeon to St. Paul's Eye Hospital, Liverpool.
- ROBERTSON, MAURICE C. G., M.B., Ch.B. Aberd., appointed House-Surgeon to Ancoats Hospital, Manchester.
- ROBINSON, V. P., M.B., B.Ch.Oxf., appointed House Physician to Royal Infirmary, Sunderland.
- ROBINSON. W. V., M.B., B,Ch.Oxf., appointed Anæstbetist to Royal Infirmary, Sunderland.
- SOUTHERN, W. G., M.B., Ch.B. Manch., appointed Certifying Factory Surgeon for the Broughton-in-Furness District, co. Lancaster.
- TACEY, DALTON. M.A. Camb., M.R.C.S.Eng., L.R.C.P.Lond., appointed Hon. Anæsthetist to the Jubilee Hospital, Woodford.
- THOMAS, F. G., M.B., Ch.B., additional Specialist Medical Referee under the Workmen's Compensation Act, 1906, to take ophthalmic cases arising in the County Courts in Circuits No. 24, 30, and 31.
- THOMPSON, J. A. DOUGLAS, M.B., Ch.B.Edin., appointed Medical Officer and Public Vaccinator for the Kenilworth District of the Warwick Union.
- THOMSON, I. S., Ch.B. Aberd., D.P.H., R.C.P.S. Eng., Assistant Medical Officer of Health and Tuberculosis Officer for Westminster.
- TOOGOOD, E. S., M.A. Oxon., M.R.C.S., L.R.C.P., appointed to the Coronership for Liskeard District of Cornwall as from October 1st, 1925.
- TWINING, E. W., M.R.C.S., L.R.C.P. Lond., appointed Honorary Radiologist to Ancoats Hospital, Manchester.
- WELLS, C. ALEXANDER, M.B., Ch.B.Liverp., appointed Resident Surgical Officer to Ancoats Hospital, Manchester.
- WISHART, JOHN, M.D., D.Sc., Ch.B., F.L.S., appointed Resident Consulting Physician, Conishead Priory Hydro, Ulverston, Lancs.
- WOOD, KENNETH W., M.B., Ch.B. Manch.. appointed Assistant House Physician to Ancoats Hospital, Manchester.



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CASE I, a rheumatic subject with a 31 years' history of frequently recurring nocturnal attacks.

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corrects acidity without causing evolution of gas. It is specially suited to the needs of children.

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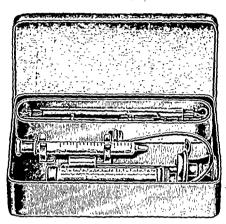
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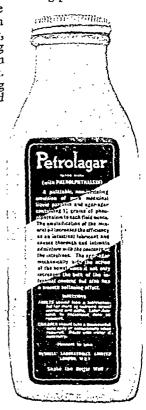
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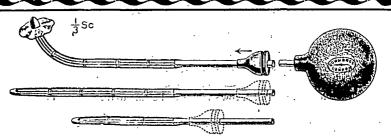
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## Obstetrical and Surgical Practice

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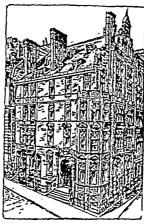
THE PRACTITIONER, Howard Street, Strand, LONDON, W.C.2.

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Original articles, clinical lectures, medical society addresses, and interesting "cases" are invited, but are only accepted upon the distinct understanding that they are published exclusively in "The Practitioner." Unaccepted MS. will not be returned unless accompanied by a suitable stamped addressed envelope.



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Letters relating to the Publication, Sale, and Advertisement Departments should always be addressed to the

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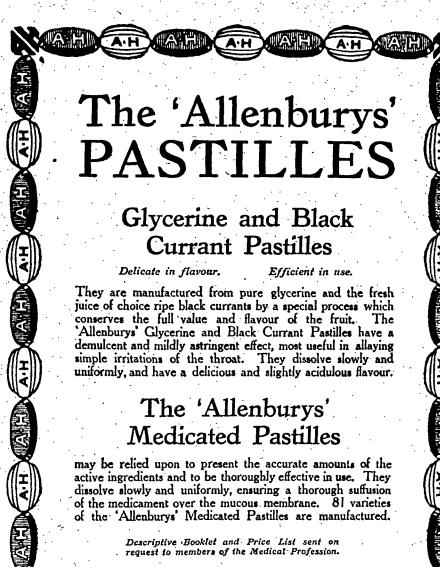
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"In the recent epidemic of Typhoid Fever that prevailed in this locality, I had an excellent opportunity of testing the nutritious elements of Valentry's Meat-Juice. In one particular case where there was stiffness in the jaws rendering deglutition difficult, from the onslaught of the malady, I sustained life by the administration of Valentry, Meat-Juice beyond a fortnight. I have no hesitation in saying that it is borne with impunity by the most delicate stomach and will be found to be an invaluable adjunct to the list of our therapentic agents."



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# WESTMINSTER BANK

# OUR CURRENCY SYSTEM. "BANKS AS ARBITERS OF COMMERCE." —A GLARING FALLACY.— MR. WALTER LEAF'S ADDRESS.

The Annual General Meeting of the shareholders of the above Bank was held on January 28th, 1926, at the Head Office, Lothbury, E.C. Mr. Walter Leaf (the Chairman) presided.

The Chairman said the year under review had seen the return of our financial system to the gold standard and the removal of the embargo upon the issue of foreign loans in London. The return to the gold standard did not seem to have produced any of the disastrous effects prophesied by the opponents of it. The deflationary effect had been very slight, if any. In particular, it had been followed, not by the great increase of unemployment predicted, but by a steady and marked decrease. The return to circumstances we used to consider normal, when the Bauk rate automatically controlled the market, was linked with the whole foundation of our currency system, and it was certain that some fundamental changes must be made in this before the financial position of the country could be considered satisfactory. The problem of the note issue, on which all our banking was founded, was now acute and had to be solved within the next two years.

#### CREDIT AND THE BANKS.

The Chairman referred to certain glaring fallacies which had been given wide currency of late for political ends. He had seen the phrase "the banks are the arbiters of commerce" made the text of some fantastic theorising. He was amused that it had been attributed to dinnself, but no chapter and text were given. He not only disavowed the statement, but added that, in the sense in which it was meant to be taken, it was permicions nonsense. The only arbiter of commerce, in the financial sense, was the power which controlled the issue of currency. The only creator of credit was the Government, which had the power of issuing legal tender. The banks had no power whatever in the fixing of the "arbiter of commerce" was a duty too high for any but the responsible Government of the country. The whole function of credit—creation, restriction, or inflation was in the bands of the Government. All that was left to the banks was the function of distributing the credit thus created and placed in their hands by their customers, who obtained it from the Government.

#### BANKING PROFITS.

The Chairman said that the past year had been a good one for banking profits Generally speaking, the deposits in the large banks had been very steady. Their own differed only by about one-half per cent. of the total from those of twelve months ago. On the other hand, their advances to customers, the most profitable employment of their funds, were about £1.5 millions larger, and the percentage of deposits had risen to 46.3, the money for the purpose having been found by the sale of over £6 millions of their investments. This was clear evidence of increased activity on the part of their customers, who had applied for this increase in their banking facilities. It proves that, in spite of all the evidence they had had of depression in various most important branches of industry and commerce, there was still a very large area in which trade had been both active and profitable. It was necessary to protest against the outcry that British Trade was doomed, and to point out once more that we were holding our pre-war proportion of world trade; our own export trade had fallen off in rather less ratio than world trade as a whole.

He referred in detail to the allocation of the profits, specially referring to the £200,000 placed to the Pension Fund—not more, he added, than was required in the Bank's progressive effort to support in an actuarial sense the additional burden they were laying on their successors.

In conclusion, the Chairman made reference to the proposal (subject to the necessary powers being given) to allot to holders of £20 Shares on the Register on the 11th February next, one fully paid £1 share (ranking for dividend with the existing £1 Shares as from the 31st December, 1925) in respect of every five £20 Shares held; and to make in the case of fractionsa payment of 10s. (free of Income Tax) in respect of each fraction of one-fifth of a £1 Share; also to add to the Reserve Fund a sum equal to the nominal

capital of the shares to be allotted.

The Report was unanimously adopted and other formal business transacted.

At the close of the above meeting an Extraordinary General Meeting was held to pass a resolution caabling the Directors to make the proposed distribution of shares.

The resolution was carried.

A cordial vote of thanks to the Chairman terminated the proceedings.

Paid-up Capital Reserve Fund Current, Deposit & Profit Balance) Acceptances & Engage Coin, Notes & Balance Balances with, & Che Money at Call & Sho Investments Bills Discounted Liabilities of Custom Engagements Bank Premises Capital, Reserve & U Belfast Banking Co The Clydesdale Ba North of Scotland Midland Bank Exe  The Midland Bank and it Britain and Northern I in HEAD OFFICE: 5 TH	ΔΝ	D	1	R	ANK
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Acceptances & Enga	gements	••	••	••	35,747,790
	ASS	ETS			
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The CHAIRMAN said the year under review had seen the return of our fluancial system to the gold standard and the removal of the embargo upon the issue of foreign loans in Loudon. The return to the gold standard did not seem to have to the good standard did not seem to have produced any of the disastrons effects prophesied by the opponents of it. The deflationary effect had been very slight, if any. In particular, it had been followed, not by the great increase of unemployment predicted, but by a steady and marked decrease. The return to and marked decrease. The return to circumstances we used to consider normal, when the Bank rate automatically controlled the market, was linked with the whole foundation of our currency system, and it was certain that some fundamental changes must be made in this before the financial position of the country could be considered satisfactors. country could be considered satisfactory. The problem of the note issue, on which all our banking was founded, was now acute and had to be solved within the next two years.

### CREDIT AND THE BANKS.

The Chairman referred to certain glar-The Chairman referred to certain gianing fallacies which had been given wide currency of late for political ends. He had seen the phrase "the banks are the arbiters of commerce" made the text of some fantastic theorising. He was of some fantastic theorising. He was amused that it had been attributed to himself, but no chapter and text were given. He not only disavowed the statement, but added that, in the sense in which it was meant to be taken, it was permicious nonzense. The only arbiter of commerce, in the financial sense, was the commerce, in the financial seuse, was the power which controlled the issue of currency. The only creator of credit was the Government, which had the power of issuing legal tender. The banks had no power whatever in the fixing of the Bank Rate of interest, and to be the "arbiter of commerce" was a duty too high for any but the responsible Government of credit—creation, restriction, or inflation was in the hands of the Government. of credit—creation, restriction, or infla-tion was in the hands of the Government. All that was left to the banks was the function of distributing the credit thus created and placed in their hands by their customers, who obtained it from the Government.

#### BANKING PROFITS.

The Chairman said that the past year The Chairman said that the past year had been a good one for banking profits. Generally speaking, the deposits in the large banks had been very steady. Their own differed only by about one-half percent, of the total from those of twelve months ago. On the other hand, their advances to customers, the most profitable employment of their funds, were about £4.5 millions larger, and the per-centage of deposits had risen to 46.3, the centage of deposits had risen to 46%, the money for the purpose having been found by the sale of over £6 millions of their investments. This was clear evidence of increased activity on the part of their customers, who had applied for this increase in their banking facilities. It proves that, in spite of all the evidence that a day of deposition in various they had had of depression in various most important branches of industry and commerce, there was still a very large area in which trade had been both active and profitable. It was necessary to protest against the outery that British Trade was doomed, and to point out once more that we were holding our pre-war pro-portion of world trade; our own export trade had fallen off in rather less ratio than world trade as a whole.

He referred in detail to the allocation He referred in detail to the allocation of the profits, specially referring to the £200,000 placed to the Pension Fundmot more, he added, than was required in the Bank's progressive effort to support in an actuarial sense the additional burden they were laying on their

successors In conclusion, the Chairman made reference to the proposal (subject to the necessary powers being given) to allot to holders of £20 Shares on the Register on holders of \$20 snares on the negaster on the 11th February next, one fully paid \$2 share (ranking for dividend with the existing \$4 Shares as from the 31st De-cember, 1925) in respect of every five \$20 Shares beld; and to make in the case of fractions a payment of 10s. (free of Income Text in a payment of the form of the state of the same of the state of the same of the state of the sam Tax) in respect of each fraction of one-fifth of a £1 Share; also to add to the Reserve Fund a sum equal to the nominal capital of the shares to be allotted

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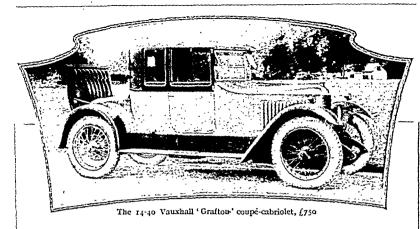
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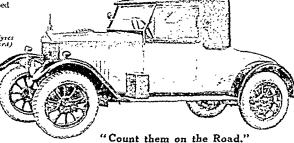
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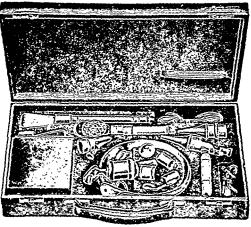
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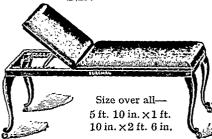
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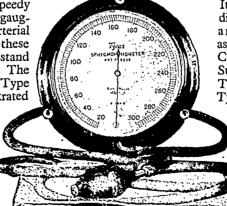
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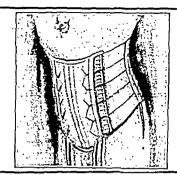
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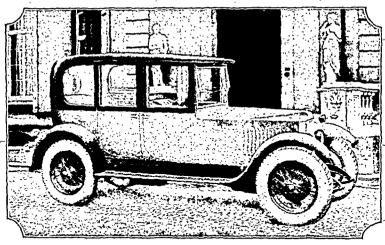
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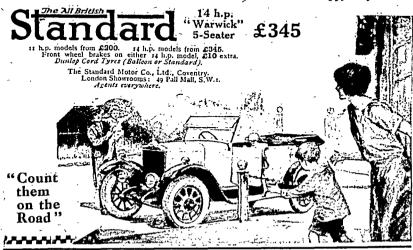
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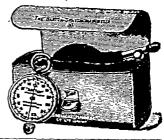
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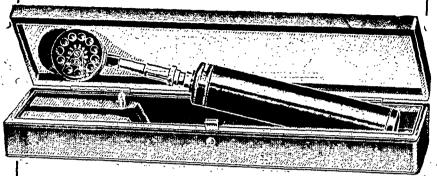
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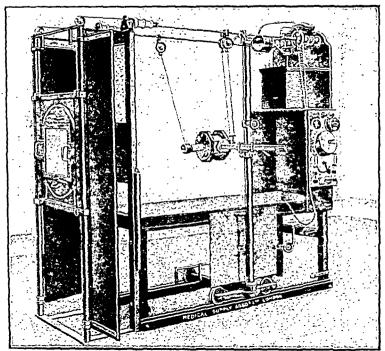
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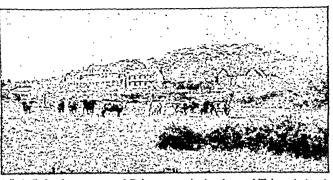
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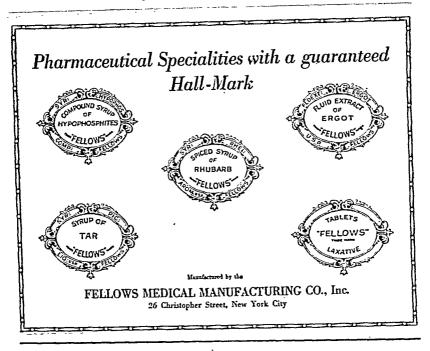
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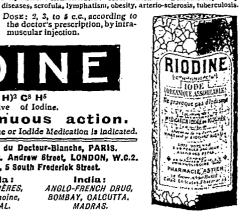
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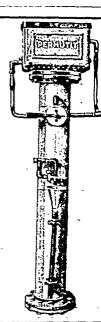
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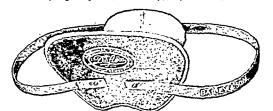
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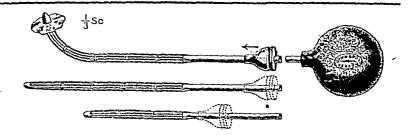


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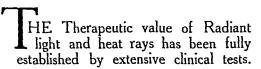
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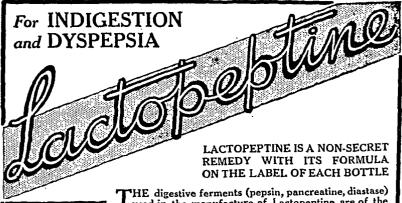
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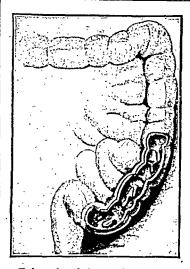
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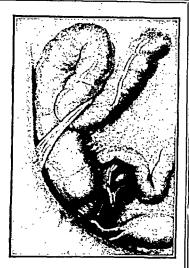
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Intestinal stasis implies mechanical friction, and this calls for lubrication. Drastic depurative measures are colonically disastrous.

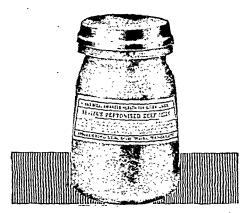
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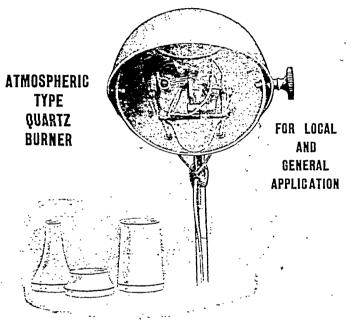
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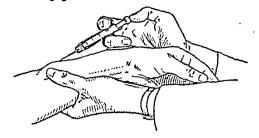
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# The Treatment of Insomnia.

BY SIR MAURICE CRAIG, C.B.E., M.D., F.R.C.P.

Physician for Psychological Medicine and Lecturer in Psychological Medicine, Guy's Hospital; Consulting Neurologist to the Ministry of Pensions, etc.

N the abstract everyone would admit the importance of sleep, but when it comes to treating an individual patient suffering from sleeplessness how often one finds the dangers attached to insomnia greatly minimized or explained away. Yet if I were asked to set down what I have learned from the experience of thirty-odd years of professional life I should place first the importance of sleeplessness and its treatment. No one would deny that sleep which is seriously defective in quality or quantity leads to mental and physical deterioration, and it is worthy of note that what we observe clinically is corroborated by the physiologist, for his observations show that sleep is the only certain means of restoring exhausted cells in the various organs of the body; indeed, if either men or animals are kept continuously awake for a certain number of days, they die. Now, if total absence of sleep can bring about a complete



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T seems probable that most organic lesions—other than the directly traumatic—have their early beginnings in functional derangement. Inherent congenital variation of structure is, of course, a factor; but many of those syndromes to which specific names have been allotted undoubtedly have an earlier, innominate stage which, if recognized, readily responds to intelligent treatment.

Every doctor is constantly being consulted by patients not yet suffering from any defined illness, who yet manifest an obvious lack of "condition." The main indications are hygienic rather than pharmaceutical. Nine times out of ten, modifications of diet, with greatly increased outdoor exercise, and the establishment of harmonious emotional activity are the measures to which the physician's thought and judgment may be most profitably directed. The one physical condition common to nearly all these patients is an overloading of the storehouses of the body with reserves for which the organism has no real use, so that the blood finds difficulty in effecting its customary exchanges.

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#### INSOMNIA

it was observations such as these which persuaded me that what I had been taught and what I had practised in the earlier years of my professional career was wrong, and that I must correct my outlook to accord with experience. Let it also be noted that those who condemn or hesitate to give drugs of the urea group will prescribe large doses of bromide, which is far more damaging to the lining membranes of the stomach and infinitely more potent in confusing the mind. I have on many occasions seen the mental state of a patient made worse by large doses of bromide, but I have yet to see one rendered worse by sodium veronal, and I feel that it is time that some answer should be made to the critics, as their statements have gone unchallenged too long. Everyone would agree that patients should not prescribe for themselves, but it is going much too far to say that a patient must have a new prescription every time that he requires a fresh supply of such sedative while still under treatment.

When I speak of ordinary hypnotics I do not include in this category morphia, heroin, or any of the opium group, as they are of little value in the general treatment of insomnia, and should not be given unless very special circumstances call for their use.

The fear of drug addiction is, in my opinion, much exaggerated; in my experience and in the experience of practically every medical man whom I have asked (and these must now number several hundreds) it is for practical purposes negligible. If one excludes the limited number of degenerate persons who, usually starting with alcohol, may in turn try, and at times adhere to, an opium derivative, the number of addicts in this country is extremely small, and yet, from the amount that is written about them, any uninformed person might imagine that drug addiction played an important part in our national life. If good results from this constant reference to drug addiction, it is

dissolution, so in proportion must partial loss account for varying degrees of ill-health. It must be either that this truth is not appreciated or that for some other reason his hand is stayed, otherwise no physician would fail to endeavour by every means in his power to bring about a speedy restoration of his patient's sleep. Whilst admitting that want of appreciation does sometimes play a part, experience has taught me that it is the fear of prescribing hypnotics that chiefly accounts for the half-hearted manner in which the treatment of insomnia is approached.

Most of us have been taught to eschew the use of those drugs that are commonly spoken of as hypnotics, and textbooks and writings tend to emphasize their deleterious effects rather than their medicinal values. Some urge that drugs such as sodium veronal should be placed under the Dangerous Drugs Act, and give the reason that these drugs have been used as a means of self-destruc-If this argument is seriously intended, then razors and all sharp instruments must be scheduled, and gas must only be supplied in cylinders after much signing and counter-signing. It would be interesting to know the proportion of persons for whom sodium veronal, for instance, has been prescribed and who die from taking an over-dose; the number must be infinitesimally small. The critics would no doubt answer that, though this may be so, death is not the only danger, but that these drugs have a deleterious effect. I have seen the statement made, but I can only regard it as a pious opinion, as no one has produced any definite facts, each critic founding his objections on conjecture as to what effect a drug may have, while against this assertion I have the experience of hundreds of persons who have taken drugs belonging to the urea group for many months with beneficial results, and with no untoward symptoms, and this is borne out by other physicians with similar experience. Indeed,

#### INSOMNIA

it was observations such as these which persuaded me that what I had been taught and what I had practised in the earlier years of my professional career was wrong, and that I must correct my outlook to accord with experience. Let it also be noted that those who condemn or hesitate to give drugs of the urea group will prescribe large doses of bromide, which is far more damaging to the lining membranes of the stomach and infinitely more potent in confusing the mind. on many occasions seen the mental state of a patient made worse by large doses of bromide, but I have yet to see one rendered worse by sodium veronal, and I feel that it is time that some answer should be made to the critics, as their statements have gone unchallenged too long. Everyone would agree that patients should not prescribe for themselves, but it is going much too far to say that a patient must have a new prescription every time that he requires a fresh supply of such sedative while still under treatment.

When I speak of ordinary hypnotics I do not include in this category morphia, heroin, or any of the opium group, as they are of little value in the general treatment of insomnia, and should not be given unless very special circumstances call for their use.

The fear of drug addiction is, in my opinion, much exaggerated; in my experience and in the experience of practically every medical man whom I have asked (and these must now number several hundreds) it is for practical purposes negligible. If one excludes the limited number of degenerate persons who, usually starting with alcohol, may in turn try, and at times adhere to, an opium derivative, the number of addicts in this country is extremely small, and yet, from the amount that is written about them, any uninformed person might imagine that drug addiction played an important part in our national life. If good results from this constant reference to drug addiction, it is

also responsible for no little harm, as it leads to the medical man being shy of prescribing and to patients being averse from taking hypnotics. If the matter ended here, there would be no call for comment, but when one knows that unrelieved insomnia is responsible for much serious mental trouble, the time has come for a careful survey of the matter. Experience has taught me that sleeplessness, whether in the child or in the adult, is quickly relieved in the initial stages, but time may be against the physician, and as function after function becomes involved, the position becomes increasingly critical. Fear of not sleeping is one of the most distressing of all fears, indeed it should be the aim of every physician to prevent such a fear arising. I believe that the physician who puts off prescribing a hypnotic as long as possible is the man who may bring about the habit that he so much dreads, for by his methods he has permitted his patient to become obsessed with the fear that he will not sleep, and when at last a drug is given and sleep is obtained, the patient is terrified of the experience he has passed through and of ever again having a sleepless night.

Another danger that experience has taught me is that of the early reducing of the dose or the total withdrawal of the hypnotic as soon as sleep begins to return. "Try a night without your sedative" is the advice, and maybe the first night is good, but each subsequent night will probably show progressively less sleep or broken sleep, and the tragic part is that the sedative which was giving good results before it was withdrawn may now prove to be of little help. Far wiser, once a dose has been found to give sleep, to adhere to it regularly until the health of the patient has again reached a high standard, when withdrawal will be easy and complete. Of course, I appreciate the reluctance of a physician who fears the bad effects of a drug to try this method,

#### INSOMNIA

but I feel confident that if he will only give it a trial he will have no grounds for regret. It may be necessary to reassure the patient as to the effect that a sedative may have upon his brain, but when he knows that you are recommending him to take it because you believe that it will preserve his mental powers and his physical health, you will have no difficulty in persuading him to continue as long as you advise. On the other hand, what is too frequently done is to prescribe a sedative with obvious reluctance, and to say at the same time that you will be glad to see him free from it at the earliest moment. To act in this way leaves a conflict in the mind of the patient, and he is torn between the fear of injuring his brain by the action of the drug and that of becoming insane, as he fears, from want of sleep.

Again, if sleeplessness is not relieved, the patient may tend to rely more and more on alcohol, which habit may continue long after the insomnia has passed away. A drug addict is a comparatively rare product; an alcoholic whose addiction dates from depression and insomnia is far more common. It is quite true that some patients sleep better with excitants and others with depressants, but let them be prescribed by the medical attendant. If a patient feels assured that his medical adviser will leave no stone unturned until the insomnia for which he seeks advice is relieved, he will make no experiments of his own, but if he is merely told that many persons suffer from sleeplessness, and that he need not worry, he will sooner or later make attempts to relieve it himself. The reader must not think that I am advocating large doses of sedatives; what I would have is just the reverse, as my experience is that small doses begun early rarely have to be increased, whereas if treatment is delayed, large doses may have to be given before relief is obtained.

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quality and quantity with the seasonal, daily, and even hourly variation of sunshine and the atmospheric screen through which it passes. Artificial sources of light also vary considerably in the nature and intensity of their spectra, but it is possible to maintain these radiations in a much more constant condition, and therefore these are valuable from the point of view of measuring dosage during treatment.

The clinical evidence which is at hand indicates that the exposure of the epidermal cells to sources of ultraviolet light endows the body with greater powers of immunity. The mechanism of this immunity has not vet been explained, but all the experimental evidence shows that ultra-violet radiation plays a very important part.

The dark heat and luminous rays, by their absorption and conversion into heat in the skin, produce dilation of the surface capillaries, acceleration of the blood stream, and exudation of lymph at the site of radiation. This reaction may greatly assist the inflammatory processes and in some cases explain the healing of a chronic inflammatory lesion. These rays, apart from their heating effect, do not possess any cell-killing action. The visible rays, however, have this effect when the irradiated cells are incorporated with photosensitizers, such as eosin and hæmatoporphin. biological action of the ultra-violet rays is accelerated by the heat effects of the infra-red and luminous rays.

The ultra-violet rays appear to cause changes in the living epidermal cells, which result after a short latent period in an increased bactericidal power of the blood. Erythema with subsequent desquamation and pigmentation occurs after the human skin has been irradiated with ultra-violet rays shorter than about 3,200 A.U. The experimental research which has been carried out with the long ultra-violet radiations,

HE following three articles deal with one of the most important recent advances in therapeutics, and in this connection it is interesting to note that the original suggestion for "the systematic use of sun-baths as a preventive and therapeutic measure in rickets and other diseases," by Dr. T. A. Palm, appeared in THE PRACTITIONER for October and November, 1890. Dr. Palm now writes: "I need scarcely say how pleased I am that the thesis which I put forward in your pages in 1890, that deficiency of sunlight is the main cause of rickets, and that it should be treated accordingly, is now meeting with general acceptance. It has fallen to others to demonstrate the truth of this by experiment, and by clinical work, with the aid of radiology and artificial sunlight, and I have not anything to add of equal value, but I trust that a new development is taking place in the prevention and treatment of rickets, in the course of which that disease will become as rare as typhus fever and other diseases have become in the progress of medical science and art."

# The Practical Methods of Dosage of Ultra-Violet Rays.

BY LEONARD HILL, M.B., F.R.S.

Director, Department of Applied Physiology and Hygiene, National Institute for Medical Research; and

ALBERT EIDINOW, M.B., B.S., M.R.C.S., L.R.C.P. (From the National Institute for Medical Research, Mount Vernon, Hampstead, N.W.)

HE origin of all our ideas of treatment by means of light has evolved from the beneficial results obtained by exposure of the body to the sun's rays. It is to be remembered that when an analysis of the sun's rays and the scattered light from the blue sky is carried out by means of a spectroscope, it is evident that very mixed radiations are being utilized—infrared or dark, heat, luminous, long and middle ultraviolet rays—each wave length varying considerably in

#### ULTRA-VIOLET RAYS

is due to the nature of the spectrum of the source of light employed and the depth of penetration of those ultra-violet rays which are pronounced in the spectrum. The short-flame arcs with thick carbons are richer in heat, and the long-flame arcs richer in ultra-violet rays. With the same poles and wattage, however, the ultra-violet rays from short or long flame arcs appear to be equal, but the long flame is more economical to run off the main, less current being wasted in the resistance (Angus). The intensity of ultra-violet rays depends on the high temperature of the arc and on the metallic core in the carbons.

All arcs should be automatic in their regulation, so that the size of the arc flame is constant. In many of the hand-fed arcs the carbons burn away and the flame becomes longer and longer, and a greater voltage is then required to maintain the arc; the intensity of the rays emitted therefore varies during the period of exposure.

The mercury vapour lamp is very rich in the shorter ultra-violet rays, 3,000 and less; the skin reddens rapidly, desquamation is very copious, but after repeated exposures pigmentation is slight and the skin becomes immune to any further changes. This may be due to changes in the more superficial epithelial cells, e.g. stratum granulosum, which become opaque to the ultra-violet rays after radiation. The action of this lamp is superficial and has little power of penetration.

Arc lamps emit a greater intensity of longer ultraviolet rays; these penetrate deeper into the epidermal cells and produce reactions in a deeper zone which results in a greater depth of pigmentation. The pigmentation appears to be directly proportional to the intensity of the ultra-violet rays between about 3,200–2,500 A.U. The pigment of the skin, melanin, acts as a protective screen, preventing excessive heating of the blood by the luminous and heat rays, and also screens the ultra-violet rays. Thus, when the skin is pigmented,

those which came through a 3 per cent. solution of quinine, or thick window glass (3,900-3,300 A.U.), shows that they possess no power to produce erythema and that they appear to resemble the luminous rays in many of their biological reactions. Hausser and Vahle have shown that the rays from 3,130-2,530 A.U. have the power of producing erythema. The maximal effect is with 2,970, 4 per cent. of the maximum with 3,130, and 16 per cent. with 2,530. In studying the reactions of the skin to ultra-violet radiation, it must be remembered that the erythema produced depends upon:—

- (1) The intensity of the source of ultra-violet radiation.
  - (2) The distance from the source of light.
  - (3) The temperature.
  - (4) The individual sensitiveness of the skin.

The penetration of the ultra-violet rays is directly proportional to the wave length employed—the longer radiations penetrate farther than the short rays. The sun's rays have very great intensity in heat, and luminous rays, and on clear days at midday, emit intense rays 3,100–2,970 in length in the ultra-violet region; these rays produce sunburn. The pigmentation of the skin through repeated exposure to the sun is very deep and of a characteristic black colour.

The intensity of the ultra-violet rays emitted from artificial sources of light depends upon the kilowatt energy of the lamp and the nature of the electrodes employed. The short-flame arcs have a current of high amperage (75 amps.) and low voltage (50 volts), while the long-flame arcs have a lower amperage (30-35 amps.) and higher voltage (75-100 volts); as the voltage between the carbons is increased, the length of the arc becomes greater. Different lamps and carbons produce varying and characteristic degrees of pigmentation. This

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much greater doses of light can be tolerated and the erythema dose is much bigger.

The principles involved in phototherapy are centred upon irradiation of the epithelial cells. This results in the production of erythema, desquamation, and pigmentation. The degree of erythema produced varies with the intensity and penetration of the rays to the sensitive zone.

The irradiation of the skin gives rise to an increased bactericidal power of the blood. The examination (by A.E.) of over 150 consecutive cases points to the fact that this increased hæmo-bactericidal power is associated with erythema of the skin. Except in those cases where the initial bactericidal power is already very high, an increase in the killing power of the blood is observed in all those cases which redden after treatment. Excessive exposure to light may give rise to a fall in bactericidal power, general malaise and fatigue. The most favourable dose of light is one which produces a mild erythema, which disappears within twenty-four hours.

The minimal erythema dose in a normal white skin usually corresponds to twice the time required for killing a standard culture of infusoria in a standard quartz cell at a temperature of 20° C. The ultra-violet intensity of a lamp and the dose of light employed may be expressed in terms of infusoria-killing units, each I.K. unit being equivalent to the time required to destroy infusoria placed in a water-cooled quartz cell of standard width (at 20° C). The initial intensity of ultra-violet rays from a source of light necessary to produce a rise in the hæmo-bactericidal power is on an average 2–3 I.K. units, and roughly 15 square cm. of skin per kilo weight is the minimal skin area which must be irradiated. (This was obtained by one of the writers from some preliminary experiments with rabbits.—A.E.)

The sensitiveness of the skin can be determined by exposing circular areas of skin about \( \frac{1}{2} \) in. in diameter

#### ULTRA-VIOLET RAYS

for varying times corresponding to 2,3, and 4 I.K. units. The following day three areas of erythema of varying intensity are visible, and these can be roughly estimated by means of a Lovibond tintometer. The patients tested in this way all showed a definite reaction with the 3 and 4 I.K. dose. The more sensitive patients show a greater reaction to the 4 I.K. dose, although the reaction to the 2 I.K. dose may be no greater in them than in the less sensitive. From this preliminary test the minimal erythema dose can be estimated, and this dose of light is the one usually employed to observe the effect of radiation on the bactericidal power of the blood. In place of the killing of infusoria, the bleaching of a standard (30 per cent.) solution of pure acetone coloured with methylene blue may be used. The scale of coloured tubes for testing the degree of bleaching is biologically standardized. One on the scale equals twice to four times the dose required to produce a slight erythema of white skin.

#### GENERAL PLAN OF PROCEDURE.

Three small areas of abdominal skin are exposed to the mercury vapour lamp (480 v. +3.5 amps.) for  $3\frac{1}{2}-5$  minutes and  $7\frac{1}{2}$  minutes respectively, at a distance of 30 inches. This corresponds to 2, 3, and 4 I.K. units. The following day three small areas of erythema are observed. By means of the Lovibond tintometer the colour of the skin is estimated with each dose of light and expressed in the following way:—

				Erythema developed after			
Colour of Normal Skin.			ļ	31 mins. Exposure. 21.K.	5 mins. Exposure. 3 I.K.	7 mins. Exposure. 4 I.H.	
Red Yellow		• •	1.0	1·4 1·0	1·8 ·1·0	2·4 1·0	

The minimal erythema dose is 2 I.K. units, and 107

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The sensitiveness of the skin can be determined by exposing circular areas of skin about ½ in. in diameter

#### ULTRA-VIOLET RAYS

bactericidal test is of help in deciding whether light treatment is suitable and to control the dosage during the course of treatment. Dr. L. Colebrook has shown that excessive dosage of light lowers the hæmobactericidal power. This point is of great importance, and the test has been found helpful in controlling the treatment of feeble patients who have a very low bactericidal power of the blood. In such cases the killing power of the blood may be steadily improved and reach a high level (e.g. 54 per cent. rising to 96 per cent.), which is maintained.

During menstruation the bactericidal power of the blood is in many cases lowered, and radiation appears to make this even worse; therefore light treatment should be abandoned during this period. In experiments which have been carried out on rabbits injected with bacteria so as to produce conditions of septicæmia, the bactericidal power of the blood fell to a very low degree, namely, 10 per cent. Radiation of the skin in such conditions does not increase the killing power of the blood; this supports the view generally held that treatment of acute infections by light should be very cautious.

In continuing the course of treatment, the chest and back, or front and back of the legs, are irradiated on alternate days. The object of each dose of light is to produce a mild erythema. The desquamating skin is very opaque to the ultra-violet rays and the newly exposed skin is extremely sensitive. A very small dose of light—2-3 I.K. units—over this new skin will produce a very vigorous erythema and even hæmorrhagic rash. During the period of desquamation, the skin should be rested and three to four days be allowed to elapse before further irradiation is started on this area. The period at which

4 minutes is the dose selected for exposure in carrying out the bactericidal test. A sample of blood is taken by means of venipuncture, placed into a sterile test tube and defibrinated. The chest and back (to the level of the iliac crest) are then exposed for 4 minutes to two mercury vapour lamps, one 30 inches in front and the other 30 inches behind the patient. This corresponds to  $2\frac{1}{2} + 2\frac{1}{2} = 5$  I.K. units. Two and a half hours after radiation a second blood sample is collected and defibrinated as before. The bactericidal power of the blood is estimated by the method described by A. E. Wright, L. Colebrook, and F. J. Storer, and the result is expressed in the following way:-

	W/6.	W/18.	W/36.	W/60.
Number of colonies of staphylococci which grew in each 50 c.cm. of blood at 2 p.m.	68	22	12	7
Number of colonies of staphylococci which grew in each 50 c.cm. of	6	2	1	0
blood at 4.30 p.m.  Number of colonies of staphylococci which were implanted with each 50 c.cm. of blood.	340	113	57	34

Average per cent. hæmobactericidal power of blood at 2 p.m. (before radiation) = 80 per cent.

Average per cent. hæmobactericidal power of blood at 4.30 p.m. (after radiation) = 98 per cent.

Increase on killing power of blood 21 hours after radiation =18 per cent.

In some chronic inflammatory diseases the initial bactericidal power of the blood is very high (98 per cent.) when tested against staphylococcus, streptococcus, and pneumococcus. Radiation of the skin then produces very little change, and it is difficult to test by this means the effect of light treatment. In all probability many factors other than the bactericidal function are involved with phototherapy. Nevertheless the

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	W/6.	W/18.	W/36.	W/80.
Number of colonies of staphylococci which grew in each 50 c.cm. of blood at 2 p.m.	68	22	12	7
Number of colonies of staphylococci	6	2	1	0
which grew in each 50 c.cm. of blood at 4.30 p.m.  Number of colonies of staphylococci which were implanted with each 50 c.cm. of blood.	340	113	57	3 <del>4</del>

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Average per cent. hæmobactericidal power of blood at 4.30 p.m. (after radiation) = 98 per cent.

Increase on killing power of blood  $2\frac{1}{2}$  hours after radiation = 18 per cent.

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#### · ULTRA-VIOLET RAYS

many advantages in the early stages of treatment; the carbon are should be employed at a later stage. The dosage required is small, as the horny layer of the skin is thinner and the production of erythema and pigmentation appears to be easier than in the adult skin.

This method of treatment, differing in many respects from the Copenhagen method, is still in the experimental stage. The great difference between the two lies in the time of exposure and in the question as to whether it is better to keep the epithelial cells "light sensitive" so that erythema can be produced by each dose, or to pigment the skin and make the cells tolerant.

The Copenhagen lamp, with thick carbons, emits less ultra-violet rays than the long-flame arc used by the writers, and while a two-hour exposure is the rule with the Copenhagen arc, 15 minutes is the longest time employed with the long-flame arc. The latter gives a very great saving in time, and the clinical results obtained with it seem no less good.

desquamation of the skin starts varies greatly with each individual patient.

After repeated exposures to the M.V.L. the skin becomes tolerant to big doses of light—10-12 I.K. units—and the degree of pigmentation varies with the individual skin. At this stage of treatment exposure to the arc lamp may be started, the dose of light being steadily increased until an erythema is obtained. This dose of light is repeated with intervals of rest, and is only increased when the skin fails to react to it.

When "white flame" carbons are used, the pigmentation is of a light brown colour and is very gradual in its development. An excessive exposure to light produces a maximal erythema, and the skin adapts itself, becoming immune to such. A complete rest of the irradiated area will restore the skin to a sensitive state. When pigmentation is established and the tolerance of the skin to radiation has become great, the long exposure to light now required to produce a reaction can be reduced by employing tungsten cored carbons. The ultra-violet spectrum of tungsten is characterized by an almost continuous succession of lines of about equal intensity. It is necessary to proceed with great caution, as these tungsten cored carbons are very powerful and overdosage with light can be easily obtained.

By adopting the above method of treatment, the time of exposure is made short—fifteen minutes being the longest exposure necessary with 30 amps. + 70/80 volts long-flame arc. The chest and back or front and back of the legs are exposed on successive days, the patient having three treatments per week. The skin is maintained in a "light sensitive state" during the whole course of the treatment, allowing intervals of rest for recovering, and employing throughout cautious dosage.

In treating children, the mercury vapour lamp has

TOTAL NUMBER OF ATTENDANCES OR TREATMENTS.

The number of attendances between August 20, 1923, and August 20, 1924, was 1,730 (i.e. 1,730 sittings in one year).

Between August 20, 1924, and February 20, 1925, the number of attendances was 1,460 (i.e. 1,460 sittings in six months).

The total number of attendances in eighteen months amounted to 3,190.

The duration of treatment was naturally regulated by the nature and chronicity of the condition treated, e.g. a tuberculous sinus—which had persisted for three months after operation—healed after ten sessions, while the duration of the treatment of lupus cases ranged from three to eight months.

We are in accord with other workers who have found that the degree of erythema reaction reached in the first few sessions is a valuable prognostic index.

In those cases in which no erythema and subsequent pigmentation occurred—irrespective of the nature of the disease—the ultimate results were poor, while in those pigmenting rapidly and deeply, the results, without exception, were good. Apart from the effect on the local condition, a marked improvement both of the physical and mental states was noted in all the cases, particularly in the children. In the "reacting" cases, the appetite, nutrition and weight, nervousness and insomnia were all remarkably influenced after a few applications of the rays. The total number of cases treated from August 20, 1923, to February 20, 1924, that is, a period of eighteen months, was forty-two, and of this number nineteen are still attending.

In only one of the lupus cases was the treatment confined to the arc-lamp radiations, and in this case, a small patch of the dry variety on the forearm in a girl of eight, the disease has not quite involuted, a single nodule remaining obdurate in spite of repeated irradia-

# Some Results of Light Therapy.

BY HENRY C. SEMON, M.A., M.D., M.R.C.P.

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Clinical Asst. Light Department, Royal Northern Hospital.

HE Light Department at the Royal Northern Hospital was opened on August 20, 1923. Our equipment consisted of two 25-ampère carbonare railway-station lamps, which, when connected in series, formed two radiating foci, sufficient for the simultaneous treatment of twelve patients—six round each lamp. Our staff consisted of one Sister, of whose devoted attention we cannot speak too highly.

#### EXPOSURES.

The lamps were swung by cords from cross beams in the roof, and the carbons were generally about three feet from the ground, on a level with the chins of patients seated on chairs around them. They were eight feet apart, and separated for male and female patients by white screens. The distance of the individual patients from the arcs varied with their diseases and the number present at any one session—on an average it was about 18 inches. Goggles for eye protection and bathing drawers were provided and kept for each patient. The first bath occupied twenty minutes (ten minutes' exposure to front and back), and the times were increased daily until a maximum of four hours' exposure (in some cases) was reached. These times were regulated to a considerable extent by the needs. and reactions of the patient.

#### RESULTS OF LIGHT THERAPY

serious sequel that supervened after four months' marked improvement of the local manifestations, and in the general health and weight of the patient.

In this case the probabilities are in favour of the hypothesis that a latent pulmonary focus was activated by influenza which, at that time, was very rife in the district. Nevertheless the possibility that the lung condition was "lighted up" by the baths cannot be entirely excluded, and a sequel such as this should stimulate all workers in heliotherapy to exercise extreme caution in the selection of their cases.

E. D. Age 21 (baby's milliner) was admitted to the Light Department on October 8, 1924, suffering from lupus of face and nose.

History of present illness.—Eighteen months ago patient noticed spot on face, treated it as boil; at length went to a practitioner who sent her to R.N.H. Three months ago patient began to have nasal

symptoms.

History of past illnesses.—1913 (age 10). Kick on right ankle at school. Red mark which persisted for some weeks, then abscesses formed. Treatment at Hackney Hospital resulted in improvement. Scarlet fever—leg worse afterwards, pain and limping. 1914 (age 11). Treated at Guy's Hospital for bone tuberculosis. Operation, amputation below right knee. 1915 (age 12): hæmoptysis at school.*

Result of Light treatment.—General health improved slowly during first month, then more rapidly. During last six weeks of attendance the patient steadily gained weight each week (3 lbs. 2 ozs. in six weeks), and had no untoward symptoms of any kind. There was considerable improvement in the local condition. From January the patient stayed at home as she had influenza. On February 2, 1925, the patient came to the Light Department for treatment. She gave a history of four days cough and malaise. The physical signs in her chest and her raised temperature contra-indicated treatment, and she was sent home to bed and requested to call in her panel doctor at once. On February 9 her doctor sent her to Brompton Hospital. Examination showed advanced disease of both lungs, and tubercle bacilli were found in the sputum.

A. B. Age 20, clerk.—Age 5: Discharge from both eyes following searlet fever. Age 10: Tonsils and adenoids removed. Discharge from eyes still persistent. Age 14: "Carbuncle" of face (left cheek), discharge from eyes was still persisting and ran into wound. March, 1917: Wound increased in extent. Patient seen by private doctor who sent him on to R.N.H. Treatment at R.N.H. (X-rays) 2–12. Result: Lesion healed in centre but spread at periphery. March, 1922: Seen by Dr. Semon, treated with diathermy, pending opening

* Patient "never very strong" since childhood. (This history was not elicited at the commencement of her arc-lamp sessions.)

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tion under eosin (1 per cent. solution) as practised at Leysin. It is our opinion that lupus cannot be cured by arc-lamp irradiation alone, but there is no doubt that in the mountain light and air of Leysin, Dr. Rollier's cases of lupus clear up completely without any local application, Finsen light, or surgical procedure, and we see no reason why, with more perfection of the technique and power of the illuminating source, similar results should not be obtained under artificial conditions. Of one thing we are assured, the carbonarc-lamp is in process of becoming an indispensable adjunct to all local measures for the cure of tuberculosis of the bones, skin, joints and glands, and we believe it to be in this respect a much safer and more reliable method than are the attempts to raise the power of resistance by tuberculin injections.

The effect on septic lesions (other than tuberculous) is very satisfactory. Inveterate boils, and the impetiginous (streptococcal) complications of lupus, and even old osteomyelitic sinuses (in one case) were rapidly healed by a few applications of the rays. It would seem that the control and cure of the septic factor—a very important one in all open tuberculous lesions—is probably the most potent therapeutic effect of the irradiations. The rapid healing of old tuberculous sinuses is accounted for on such a hypothesis, while the intractability of the dry, non-septic, "closed" patches of uncomplicated lupus can also be thus explained.

We have to record a case (E. D.) which is worthy of special study as it illustrates the great importance of a thorough examination for tuberculous foci in the lungs before the patient is submitted to the powerful stimulus of arc-light treatment. The regulations in the department include a careful history, an auscultatory examination and observation of the pulse and temperature before and after the first few sessions, and on these grounds no blame can be attached to the staff for the

of Light Department. November, 1923: Admitted to Light

Department.

Condition on admission.—Lupus in mouth (hard and soft palate), tear duct infected, leading to stricture, patch of lupus on left cheek, doubtless infected from tears. Attending for local treatment by Mr. Zamora in throat department.

June, 1924.—Much improvement, treatment reduced to three

times weekly.

November, 1924 (i.e. one year after admission to Light Department).—(1) Face: Small smooth supple scar on left cheek; (2) Eyes: Slight watering only, naso-pharynx, slight discharge mucopus. General condition satisfactory; (3) Palate: Healed.

J. B. Age 15. Lupus. Past History.—1913, age 5: Patient had sore patch (lupus) on left cheek. He received treatment at various hospitals for ten years. Face twice scraped. No permanent improvement. Sinuses around the left elbow region, and on left forearm; he had hospital treatment for this condition from the age of 5 to 12, and was in a sanatorium for five months. Later, elbow was put in splints, fixation of joint and some wasting of muscles ensued, some abscesses healed, others broke out in their place, persistent sinuses followed. November, 1923. Age 15: The patient was admitted to arc-light treatment, five treatments weekly.

Record of condition on admission: "Patch of lupus on face (left cheek). Four sinuses on left elbow, stiff joint. Old tuberculous scars

on legs and arms."

June, 1924 (i.e. seven months later).—The record runs: "Much improved. Considerable movement in elbow joint. To attend three times weekly."

July, 1924: The patient was sent to the Infirmary for sun treatment—little sun was seen that summer, but the patient had open-air

treatment.

November, 1924: The patient seen at Light Department. His condition was as follows: Patch on face, 2 in. by  $1\frac{1}{2}$  in., smooth, supple scar except at lower edge where some keloid has formed (to have X-ray treatment for this). Elbow—No sinuses. Pale smooth scars, some adherent to bone. Movement at elbow joint. Flexion, a little less than a right angle. Extension,  $1\frac{1}{2}$  right angles. Supination and pronation only slightly impaired. A useful joint.

Report kindly sent by Mr. A. M. Zamora, assistant surgeon in the Ear, Nose and Throat Department, March 18, 1925:

G. V. Age 37, domestic.—First seen July 1, 1924. Had been treated at Guy's Hospital for lupus of the nose. When seen at the Royal Northern Hospital there was extensive lupus of both vestibules and inferior turbinates. This patient was treated by light and by surgical measures, which included (1) scraping under general anæsthetic, July 23, 1924; (2) scraping again under local anæsthetic, October, 1924; (3) cauterization on about four different occasions with the electro cautery. At the present date the patient

# RESULTS OF LIGHT THERAPY

is free from lupus in the nose and, in my opinion, this result has been greatly accelerated by the light treatment.

#### PIGMENTATION.

#### Number of cases (out of total treated) showing:

(a)	Good pigmentation	 ٠.	23
	Medium pigmentation	 	8
(c)	Slight pigmentation	 	11
• •			
			49

#### EFFECT ON DISEASE.

#### Number of cases (out of total treated) showing:

Apparent oure	• ,•	. :	 10
Marked improvement			 181
Slight improvement			 9
No effect	• •		 5
			42

#### ANALYSIS OF DISEASES.

	No. of cases.	Pigmentation.	Resul <b>t.</b>	
Lupus Glands (tubercular) Paoriasis Prurigo Ichthyosis Abscess (probably T.B.) Eczems Loucoderma T.B. sinus T.B. ankle joint	13 17 3 1 1 1 2 1	See separate list f Pigmt. G.2, M.1.2 M. S. G. S.2. S. G. G. G.	or particulars.  Marked improvement, 3.  At 1.  Nil.  Apparent cure.  Nil.  Nil.  Apparent cure.  Apparent cure.  Apparent cure.	Two still attending. Still attending

^{1 17} still attending, i.e., tuberculous ulcer 1 case; lupus 6 cases; glands 7 cases; psorfaels 2 cases; prurigo 1 case.
2 G. = good. M. = moderate. S. = slight.

# RELATIONSHIP BETWEEN PIGMENTATION AND EFFECT ON DISEASE.

Disease.	No. of Patients Treated.	Pigmentation.			Result.*				Remarks.
Discase.		Good.	Med.	Slight.	A.C.	M.I.	s.i.	Nil.	
Lupus Enlarged glands	13 17	10 8	23	1 6	43	8 10	1 3		123

^{*} A.C. = Apparent cure. M.I. = Marked improvement. S.I. = Slight improvement. Nil = No effect.

Lupus.—Of the 8 cases which showed marked improvement 117

2 left the district, so had to discontinue treatment, the other 6 are still attending. The one case of slight improvement was an old woman. One case of lupus showing apparent cure after treatment had, in addition, discharging tuberculous sinuses and a stiff joint—the sinuses healed and the joint's range of movement greatly increased.

In the 4 cases with disease apparently cured the duration of the exposure was approximately as follows: 3/12, 5/12, 8/12, 8/12 (months), of five sittings weekly. All the cases benefited in health

and spirits.

3 Glands.—The results of treatment in the 17 cases admitted for enlarged glands are as follows: 3 cases have been discharged with arrested disease; 10 cases show marked improvement (of which number, 7 are still attending); 3 cases show slight improvement (of which number, 2 are still attending); 1 case showed no result. Pigmentation has been good in 8 cases, medium in 3, and slight in 6. Of these 6 slightly pigmented cases, 3 show only slight improvement.

#### SUMMARY AND CONCLUSIONS.

- 1. Our results in lupus show clearly that carbon-arc irradiations are not by themselves sufficient to effect a cure.
- 2. The septic complications both in this disease and in tuberculous joints, as also in chronic osteomyelitis, were, however, rapidly controlled in all such cases.
- 3. The degree of pigmentation is a valuable prognostic index.
- 4. The general health and spirits, the appetite, and weight were notably improved in the case of children

especially.

5. In one case the light may have flared up a latent pulmonary focus, and the possibility is an urgent indication for extreme care in the selection of cases for treatment.

# Artificial Sunlight Treatment.

By W. J. O'DONOVAN, O.B.E., M.D., M.R.C.P. Chief Assistant, Skin and Light Department, London Hospital.

HE introduction of general light baths into English medical practice is too recent for an attempt to be made now to record its history. The work of Finsen in Copenhagen, and that of Dr. Sequeira in London, has for over twenty years past established local actinotherapy in a secure position in the medical armamentarium. In 1910 light baths were installed in the Finsen Institute to supplement the local light treatment of lupus, but it took twelve years for this advance to establish itself in London. In July, 1922, we began our experimental installation at the London Hospital, and our first publication of results was made at a meeting of the Dermatological Section of the Royal Society of Medicine on January 18, 1923. Two cases were shown on that occasion, the mental and physical benefits of this treatment were recorded, and the immediate acceptance that this newer therapy in the hands of dermatologists received is shown by the fact that Sir Norman Walker, in the eighth edition of his text-book, in 1925, states: "I feel bound to say deliberately that under no other method of treatment have I seen such rapid and satisfactory improvement as in those treated by one or other of the sunshine lamps."

The cardinal feature of this new treatment is the exposure of the whole skin of the body, save for a loin-cloth, to the action of actinic light. In English hospital-life the tradition of the exposure of patients of either sex is rightly very conservative, so that our earlier

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# ARTIFICIAL SUNLIGHT

reactions made me a little slow in using a large lamp of this type for all-over therapeutic purposes. A dark-skinned patient was picked out, with a nodular leprous deformity of his face, due to lupus vulgaris. I entertained no hope of achieving a cure by ordinary measures at our disposal, and I may fairly say that no great hope of benefit was entertained through the commencement of this new treatment; but after a month of daily exposures his improvement was so substantial that without further question the large mercury vapour lamp was permanently adopted, and we have now three in daily continuous use.

#### DOSAGE.

The initial dose of light that can safely be applied to the skin is a matter of great importance. An overdose may be a source of great suffering to a patient, if not of danger, whilst an underdose is a waste of time. Three years' daily experience has shown that in the case of carbon arc-lamps, with blondes or brunettes, half an hour is a safe exposure at a standard distance of three feet from the lamp. A small number of patients will, after this exposure, show on the next day a bright reddening of the skin, and say that it itched uncomfortably through the night; this will be followed rapidly by a dry, fine desquamation, but there is no need to suspend the treatment on this account, the second exposure to light will not aggravate these symptoms. Rarely the reaction takes the form of small aggregations of itching red papules on the trunk, but in the vast majority of cases there is only a slight stippled erythema over the scapulæ and of the upper part of the chest, together with a slight progressive pigmentation. This half-hour is a total dose; the patients are seated around the illuminant, and are turned at half-time, so that the whole body, front and back, shares in the treatment. The time of exposure

experiments were carried out with little boys only for some months. A small carbon arc-lamp was fitted to an upright, and six boys were exposed for at first half an hour, and later longer, daily to the unshielded light. These were all patients whose lupus skin lesions were not responding satisfactorily to treatment, and the beneficial change that began to show became the subject of comment among the all-too-many cases of severe lupus attending the Light Department. The poor women patients, anxious to share in this treatment, subscribed amongst themselves the sum of £1,500 towards the cost of erecting an adequate light-bath department, and to record this, Lord Knutsford has erected a memorial tablet on the wall of the new department opened in January of this year in the London Hospital.

The treatment of adults was an immediate sequel to the promising results obtained with boy patients, and bearing in mind the larger body surface to be irradiated, a larger lamp was brought into use. expected, in other words, to have to expend a greater electromotive force to secure greater therapeutic power. For little children, toddlers just able to sit up, a smallpower lamp is an obvious advantage; young children are quick in removing their eye-protectors, and there seems no point in using a source of light powerful enough to cover the frame of a navvy in order to irradiate an infant one-tenth his size. For children we are using a fifteen-ampère cinema projection lamp, which has been enclosed by a changeable quartz envelope or chimney to produce a longer flame arc, and we find the clinical results satisfactory. The use of a quartz mercury vapour lamp was begun with some hesitation and diffidence; Dr. Sequeira had been using a small water-cooled mercury vapour lamp for years in the light department for local applications with most satisfactory results, but the known intensity of its

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is gradually lengthened; at first this was done almost in a routine measure, half an hour was added weekly, until a maximum of four hours a day was reached, and at this we stopped. Without theorizing, and solely by a method of trial and error, this has become modified in the progress of time. All the cases under treatment are seen weekly, and the increase of the dose is made to depend on whether or no the patient seems to have acquired a cutaneous tolerance to his current timing. Whilst an erythematous reaction can be seen the dosage is not advanced, but in those who pigment intensely, and in those rare and strange cases that pigment not at all, the dose is advanced as quickly as in the earliest days of our researches. The initial mercury vapourlamp dose is two minutes. It is sufficient in many cases to produce a brisk general crythema, strongly reminiscent of scarlet fever, but is not to be deemed an overdose; this, too, can be advanced weekly by the addition of two minutes. The maximum dose I have given has been an hour to a case of facial and palatal lupus. The case was cured, but satisfactory results are being obtained with exposures not exceeding twentyfive minutes. It is our practice to stand a patient between two mercury vapour-lamps, and to irradiate the two sides of the body at once. So that there can be no mistake the prescription is written: "Mercury vapour light-bath, 10 min. by 2," i.e. ten minutes to each side of the body, using the two lamps at once. A practitioner working with only one lamp must be certain that he prescribes always the exact dose to any one area of skin treated by mercury vapour; there is no safe margin for error with this form of illuminant. If ten minutes were intended as a total body dose, and the nurse administered it to either side in turn, the patient would suffer.

It is not very profitable to compare lamp with lamp; one is almost tempted to say there are no bad lamps.

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One Scottish therapist has acidly written that he is actually using a form of lamp that is condemned as valueless by one writer, with results so satisfactory as to astonish many who have seen them. Some workers cannot give up the full time needed for arc-lamp therapy; the mercury vapour lamp will meet their needs. Some cases are infectious or malodorous, or for some other reason must be treated singly; and these are essential cases for the quartz mercury lamp, other cases are not limited by these considerations. There is no need, in using the arc lamp, for the meticulous oversight of doses necessary every time with the mercury lamp, so that for a large clinic the carbon-arc has administrative conveniences as well as clinical benefits. With both types of lamp the patients pigment, sometimes very deeply, but in any large series of cases the pigmentation will be more common and more deeply developed in the cases treated by the arc lamps. In smaller hospitals, and in private clinics, the nature of the electric supply may determine the type of lamp that may be installed. Are lamps are immensely more comfortable for the operator, the mercury vapour lamp producing headache, eyestrain, and conjunctivitis, if the eyes are not constantly protected, and going in and out of the lamps with patients and with visitors, day after day, one is apt to be caught unawares, and at the least to find one's visual acuity lessened for the rest of an afternoon. Every visitor comments on the fact that the backs of the patients are more deeply pigmented than their fronts, and ingenious reasons are advanced as to why this should be so; many suggest that the sitting posture used is casual, but it seems almost universal in the animal kingdom that the dorsal hair is pigmented, and the abdomen often white. The rooms used for light treatment are apt to become stuffy and malodorous, and we count ourselves fortunate in having an ozonizing apparatus in the ceiling

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clinicians may add largely to this important, although deterrent, field of knowledge. In my hands cases of lupus of the larynx have not done well; with ordinary exposures and with reduced timings the results have been to incline me to counsel against treatment of this condition by light-baths. This does not apply to cases of lupus of the palate, or of the mucous membranes of the mouth. Cases of pulmonary tuberculosis should be treated only by a physician familiar with the subtle symptomatology of this complaint, but it is our experience that cases of lupus, or of surgical tuberculosis accompanied by pulmonary tuberculosis, have their general health lowered, and their pulmonary symptoms aggravated, on half the doses of light given to parallel cases whose lungs are apparently free. Dr. Sequeira has published the extraordinary case of a little girl who twice became pyrexial, and once almost typhoidal under light-baths, and who recovered each time on their discontinuance; she suffered ostensibly from multiple tuberculides of the skin, but large mediastinal tuberculous glands were later demonstrated on radiographic examination. Any patient losing weight while under treatment should be most carefully examined for signs of phthisis, and any case developing systemic disturbance, as evinced by sickness, headache, or faint feelings, should be stood off for a week, examined carefully, as if a new patient, and restarted at the minimum dose.

Patients of either sex may at times absent themselves, and on return slip into the treatment-room and continue at their old exposure if not prevented. All must be warned that if they stop away they must see the nurse on their return. If the absence is of any moment, say, a week, they can be put on the basic dose of light, pending the doctor's examination of their skin. It is conceivable that an epileptic might fall into the light; such a patient should be grouped with the

of every compartment. This has completely removed the source of complaint; on the hottest days of summer the patients on the longest doses complain only of thirst, and a bubbling drinking-fountain is installed to meet this need. As many of our patients are very poorly circumstanced, a bath is an essential fitment where groups of cases are treated simultaneously; the clothes of all the cases are kept separate in metal cubicles. No difficulty whatever is found in securing the patient's daily attendance, but due credit must be given to the great and constant help we receive from the public health authorities. The London County Council has initiated a special school so that medical treatment over long periods of time shall not be associated with illiteracy; the boys are treated in the mornings, and attend school in the afternoons, and the girls vice-versa, while more distant authorities, by the provision of season tickets in certain cases, bring light therapy within the reach of cases that otherwise we would have to refuse.

There is an apparent simplicity in light therapy that appeals to the lay public, and Dr. McCormac, of the Middlesex Hospital, has performed a notable service in the rapid publication of the severe ill-effects, both cutaneous and systemic, that ensued when a patient, who had installed a mercury vapour lamp over his bed, fell asleep for a lengthy period while taking a light-bath at home. There seems an inversion in the right mode of procedure when nurses and masseuses purchase installations from manufacturers, and then come to light departments and ask to be instructed in their use; it is hard to forget the visit of a blind masseuse who had been advised to install a mercury vapour lamp.

#### WARNINGS.

Our work has largely consisted in the treatment of lupus; a long-standing disease seems to call specially for light therapy, and hence wider experience by other

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physically weak, and treated lying on his side on a couch. Some manufacturers publish illustrations of their apparatus suspended over a patient lying in bed. The quartz mercury lamp is fragile, it might conceivably break over a patient with lamentable results from the spilt hot mercury. This position of the lamp is never necessary; so that this risk, however remote, need not be incurred, the lamps can be adjusted to the height of the patient on any couch, and one side and then the other of the recumbent patient can be treated without risk.

To treat febrile cases is on the whole inadvisable. I have seen a case of tuberculous peritonitis with fever benefit by light therapy, but always in such cases the dose is small, its increases are widely spaced, and the clinical symptoms and signs are watched narrowly at every visit. This new therapy must not be used to the exclusion of the tried and . proved weapons in our armamentarium. The patient with Pott's disease of the spine must not discard his splinting; the severe case of rickets must visit the orthopædic surgeon; a surgeon must decide in cases of adenitis whether tonsils, adenoids, or teeth must be removed. So new is this treatment, and so heavy are the demands made upon it in untried fields, that for some little time to come, for security, it seems essential that each group of diseases treated by light should be overlooked by a specialist familiar with the evolution and prognosis of his own clinical group. This appears the reasonable way to avoid claims for light therapy that are bound to be made by enthusiasm without special experience.

#### CASES BENEFITED BY LIGHT THERAPY.

I cannot add to the very definite statements of Professor Reyn and of Dr. Sequeira as to the great value of this weapon in the treatment of lupus vulgaris; it is

# ARTIFICIAL SUNLIGHT

established and accepted. It does not displace any accepted method of treatment, it is an additional weapon lessening tremendously the field of hopeless cases and shortening the time of treatment for others.

Many clinicians have written up its benefits in both human and experimental rickets. Dr. Palm has had verified his pioneer observations, published in THE PRACTITIONER so far back as October and November, 1890. The ophthalmic surgeon has come late into this field, and his demands increase daily. Cases of corneal ulcer, of recurrent phlyctenules over many years past, and cases of tuberculous irido-cyclitis are coming for adjuvant light treatment in increasing numbers; noteworthy, too, is the way in which children with chronic coughs throw them off after about a month of light therapy. Severe anæmias improve definitely, but for how long this will continue it is at present impossible to say; the judgment on these grave cases must lie only with the hæmatologists, but light must be tried out for these conditions. Psoriasis can be cleared off, but the same result can be secured more expeditiously with X-rays. The irritation of a lichenized focal nevrodermite can be removed by X-rays. This will have to be repeated, and has its own dangers, an erythema dose of light will give the same relief without the same anxiety as to later ill effects. One might go on adding to this list, but time and others will complete the tale. Laboratory research workers have entered this field with enthusiasm. 'The physicists of the line of Faraday and Kelvin must help us; the physiologists living in the traditions of Claud Bernard and of Helmholtz are bound in time to add precision to our nomenclature and to define the lines of therapeutic advance.

# The Treatment of Patients Before and After Abdominal Operations.

By HERBERT J. PATERSON, C.B.E., M.C., M.A., F.R.C.S. Senior Surgeon, London Temperance Hospital; President, Surgery Section, Royal Society of Medicine; formerly Hunterian Professor, Royal College of Surgeons, etc.

N the surgery of to-day so much attention is devoted to details of operative technique that there is a danger of the importance of the preparatory and post-operative treatment being minimized. Indeed, I have heard a surgeon remark that a patient's fate is sealed for good or ill when the wound is closed. I am sure that this is a wrong idea. Attention to detail in the treatment before and after operation is second only to the skilful performance of the operation. Nor must we forget the value of a good nurse. Not infrequently efficient nursing and after-treatment will pull patient through, even when conditions appear desperate, and always will add greatly to the patient's comfort and prospect of a speedy convalescence. Success in operative surgery is no exception to the rule that success depends on attention to detail. individual assisting in any way in an operation is a link in the aseptic chain. Just as a chain is only as strong as its weakest link, so the attainment of perfect asepsis depends on the care taken by each individual in the performance of his or her share in the preparation for and the conduct of the operation. A flaw in the technique of one individual may render of no avail the precautions of the others, and may be a source of danger to the patient. There is no finality in surgery.

The practice of to-day differs materially from the practice of yesterday. This article is not intended to be a description, nor even a summary, of all the different methods in use, but simply an account of those which, from an experience of many years, as well as from watching the practice of many other surgeons at home and abroad, I personally have found to give the best results, and which, from my own experience, I can recommend. They are given in the hope that they may be of some service to those who from time to time are called upon to undertake the treatment of patients before and after abdominal sections, and who have to depend for their knowledge on the somewhat scanty information to be gained from some of our textbooks.

#### PREPARATORY TREATMENT.

(1) General.—The minimum period of preparation for an abdominal operation (except, of course, in case of emergency) should be a week, during which time the patient should rest in bed for the greater part of the day, and keep to a fluid diet. For at least seventytwo hours before the operation the patient should remain in bed and have nothing but sterilized milk and tea, and in cases in which an anastomosis is to be performed, this period should be increased to ninety-six hours. The patient should be encouraged to drink plenty of fluid, especially water. Special care should be paid to the condition of the mouth. Stumps or badly-decayed teeth should be extracted, the teeth brushed twice daily with carbolic tooth powder, and the mouth rinsed frequently with Listerine. There can be little doubt that some cases of sepsis after abdominal operations are due to a septic state of the Two tablespoonfuls of liquid paraffin are given every night, and one tablespoonful in the morning. It is important that the paraffin should be a good brand, of high specific gravity and high viscosity,

such 23 Colonol or Internol. Some of the paraffin on the market is of such low specific gravity as to be quite useless. No purgatives are given, and I have given up even the classical enema on the morning of operation, regarded with such veneration by the nursing profession, and I rely entirely on liquid paraffin.

It was many years before I realized the harmfulness of purgatives and enemas before operation. Apart altogether from the injurious effect of loss of fluid by purgation, the disturbance upsets the patient. I am satisfied that much of the flatulence and discomfort after operation is due to too energetic preparatory treatment. Since adopting these less vigorous but equally efficacious methods, the gain in the patient's comfort and well-being after operation, and freedom from anxiety to myself, have been immeasurable.

The treatment here described renders sterile all parts of the intestinal tract, except the large intestine and rectum, and so reduces greatly the risk of infection from within.

It is a good plan for the patient to try sleeping in the propped up, semi-sitting position, otherwise this may be found irksome after the operation. Likewise, the patient should be encouraged to practise taking deep breaths at intervals during the day. I attach great importance to such breathing exercises. They tend to diminish the danger of hypostatic congestion of the lungs after the operation, and, further, such preparations give the patient something to think about, and give confidence by encouraging the belief that everything possible is being done to ensure a successful operation.

(2) Medicinal.—Twenty grains of bicarbonate of soda are given every four hours for two or three days if necessary, until the urine is alkaline. A pint of saline, to which is added half an ounce of glucose, is given per rectum night and morning, the last injection

being given on the morning of the operation.

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- (3) Preparatory Dressing.—It is important to realize that the most difficult task in connection with aseptic surgery is to sterilize the skin. It is, indeed, impracticable to sterilize the skin and keep it sterile for an hour. The minute recesses of the sebaceous and sweat glands of the skin contain organisms, and however efficient the sterilization, after about thirty minutes these organisms become active and find their way to the surface, hence the importance of covering up the skin surrounding the wound during the progress of an operation. If well enough the patient should have a hot bath on admission and daily up to two days before operation. Twenty-four hours previous to the time fixed for the operation, the whole abdomen is carefully and closely shaved, thoroughly washed with spirit or ether soap, and then rubbed well with acetone for five minutes. The acetone should be used liberally and thoroughly rubbed in with a sterile swab. The whole area is then painted over with a solution of picric acid (I per cent. in water), and covered with a light sterile dressing. Both axillæ should be sterilized by the same method, in case it may be desired to administer subcutaneous saline during the operation.
- (4) Clothing.—It is most important to prevent loss of heat during the operation. The patient's chest should be well covered with cotton wool, and the upper and lower limbs should be warmly clad, and covered, if necessary, with cotton wool.
- (5) Drugs.—Half an hour before the time fixed for the operation a hypodermic injection of atropine is given with a sixth of a grain of morphia. Before the anæsthetic is commenced the preparatory dressing is undone and the abdomen is washed again with spirit soap, then swabbed over with Harrington's solution,* and the dressing replaced. When the anæsthetist says

^{*}The formula for Harrington's solution is: Hydrarg, perchlor., 0.8 gram; acid. hydrochlor., 60.0 c.cm.; alcohol, 700.0 c.cm.; aq. destill, 240.0 c.cm.

that the patient is ready the whole operation area is rapidly and freely swabbed over again with Harrington's solution. As it is most important that the patient should not be kept under the anæsthetic a minute longer than is absolutely necessary, the arrangement of the sterile towels should be performed as smartly and expeditiously as possible and not, as is sometimes the case, as if the whole day were available for this function. It is a good plan to assure the patient beforehand that nothing in the way of operation will be begun until unconsciousness is complete.

Emergency Operations.—In cases of emergency the preparatory treatment must of necessity be modified according to the time available. In acute abdominal cases in which an operation is likely to be necessary the abdomen should be shaved at once, washed thoroughly with ether soap, rubbed with acetone for five minutes, and freely swabbed over with Harrington's solution; the abdomen is then swabbed over with picric acid and covered with a sterile dressing. No food should be given by the mouth. Sodium bicarbonate by the mouth and glucose and saline by the rectum should be given at once, and continued so far as time permit until the operation.

#### AFTER-TREATMENT.

When the operation has been finished the patient should be carried back to bed with the utmost care and gentleness. Sudden lifting and jolting may not only put a strain on the wound, but may cause the patient to vomit. The bed should be warmed thoroughly by means of hot-water bottles, but these should be removed, except one for the feet, before the patient is put back to bed. The hot-water bottles should be of stone or indiarubber, and should be enclosed in flannel bags. Hot-water bottles made of tin are very undesirable, and sometimes cause severe and

troublesome burns. The patient should be kept warm, but should not be made to perspire. The temperature of the room should be kept at about 70° F. for the first forty-eight hours.

Position.—When put back to bed the patient should be propped up at once in a semi-sitting position (Fowler's position) by means of half a dozen pillows or a bed-rest. At night the patient may be turned partly on one side, and after three or four days may, if preferred, lie on the side during the night. In my opinion the Fowler position is the best, after all abdominal operations, but it is indicated specially in cases of septic peritonitis and suppurative appendicitis, because it allows any free fluid in the abdominal cavity to gravitate to the pelvis, so that in suppurative cases pus is less likely to track up towards the diaphragm. It has been shown that the upper half of the abdomen is much more susceptible to infection by micro-organisms than the lower half. The pelvic peritoneum can take up and destroy micro-organisms, but if they reach the area around the liver they may become absorbed uninjured, and may cause pleurisy, empyema, and even pyæmia. As I have said above, the rule is for the patient to be propped up in bed at once, but if there be severe shock, it may be advisable to keep the patient lying flat for a few hours, but in all septic and suppurative cases the patient should be propped up at once, whether shock be present or not.

Continuous Proctoclysis.—For the first forty-eight hours all my abdominal cases (except in cases of anastomosis of the large intestine, i.e. ileo-sigmoid-ostomy) have continuous saline injections per rectum. This procedure is indicated especially in cases of suppurative peritonitis, but I am satisfied that it is of high value as a routine treatment after all abdominal operations. It is commenced as soon as the patient is back in bed. The largest size rubber rectal tube should

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hospital or nursing home, this is arranged as a matter of routine. The regulation of the temperature of the saline requires constant attention, and to get over this difficulty I have had an apparatus made with an electrical heater which simplifies greatly the use of this method. The temperature of the saline as it enters the rectum should be just over 100° F.

Diet.—It is not necessary to starve the patient after an abdominal operation. As soon as the patient desires a drink, small quantities of hot water are given, and if this be retained, one-ounce doses of milk diluted with two parts water. The quantity is increased gradually up to two ounces hourly. If the patient wishes it, a small cup of tea may be given. After severe operations, and in elderly and feeble patients, it may be advisable to give small quantities of home-made beef or mutton essence. On the day after operation, Benger's food and calves' feet jelly are given as well as milk. As soon as the bowels have been opened the patient is allowed to have fluid ad libitum, eggs, thin bread and butter (no crusts), and other soft solids, and in ordinary cases a light diet is resumed in a week or ten days.

As a general rule the patient's inclination is a reliable guide to the quantity of food required, although in a few cases some coaxing and diplomacy are necessary to induce the patient to take adequate nourishment. It is impossible to lay down hard and fast rules as to feeding, and general rules have to be modified in individual cases. After operation for septic peritonitis, no food is given by the mouth until the bowels have been opened thoroughly. After gastro-jejunostomy for gastric or duodenal ulcer, especially if associated with hyperacidity, the diet must be more limited in quality, although the quantity need not be curtailed. Such patients should keep to a milky diet for six months at least. On the other hand, after gastro-jejunostomy or partial gastrectomy for cancer, I feed my patients up

be used, with a hole at the end and two holes at the side. The tube should be passed into the rectum for about three inches, and should be kept in place by a piece of strapping passed round the thigh, or one of Murphy's self-retaining tips may be used.

The rectal tube is connected by means of two feet of large rubber tubing with a douche can containing from four to five pints of saline solution, which is kept at a temperature of 125° F. The douche can is raised from 4 to 8 inches above the level of the bed, so that the fluid runs slowly into the rectum at the rate of a pint an hour. After 11 pints have been given the flow should be stopped, but the rectal tube should not be removed, and the flow should be started again two hours from the time it was originally commenced. After some hours it may be necessary to diminish the rate of flow, or lengthen the interval between the administrations. In this way from ten to fourteen pints can be given in the course of twenty-four hours. The important points are: (1) to keep the temperature of the saline solution constant, and (2) to regulate the flow by gravity, and not by constricting the delivery A feeling of discomfort on the part of the patient indicates that the flow is too rapid, and if the saline be not retained, generally it means either that the flow is too rapid or that the temperature is too high or too low. Dr. Murphy, to whom we are indebted for this valuable method, maintains that if the saline be not retained, it is because it is not properly given. While I am not prepared to deny that a few patients do not retain salines well. I have no doubt that the successful employment of continuous proctoclysis depends mainly on the skill and attention of the nurse. Some nurses are far more successful than others. After an abdominal operation every patient should have the undivided attention of a special nurse for the first thirty-six or forty-eight hours. In a properly managed

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bowels have not acted naturally by the fourth day an enema may be given. Very rarely do I find it necessary to give a purgative.

Treatment of the Wound.—I believe in a tight bandage for the first twelve hours; after this it may be loosened and readjusted. There is nothing so comfortable as a many-tailed bandage made of strips of domette seven inches wide and seven feet long. The strips should be placed overlapping each other to a depth of six inches, and should not be sewn together behind, as is usual. It adds to the comfort of the patient if the bandage be undone and rebandaged every day without disturbing the dressings. Every two or three days the bandage should be taken off and replaced by a fresh one. The old one can be washed and ironed ready for the next change. The wound is dressed and the skin suture removed on the eighth day.

Breathing Exercises.—It is of supreme importance that the patient should be encouraged to expand his or her lungs thoroughly during the days succeeding the operation. At frequent intervals the patient should be instructed to take a few strong, slow, deep breaths. If there should be any bronchial secretion he should be directed to cough it up. With an abdominal wound coughing causes a certain amount of pain, but if the patient places his hands flat against the sides of his chest over the lower ribs and presses against the sides firmly, it is quite possible to cough quite forcibly without any pain or discomfort. At first the nurse should help the patient by placing her hands over his and assisting to restrain the movement of the lower part of the chest.

Duration of Rest in Bed.—There is considerable difference of opinion as to how long a patient should be kept in bed after an abdominal operation. Some surgeons get their patients out of bed within a week. Personally, I think this is unwise, and even dangerous. I have made a long trial of both practices, and I have

more rapidly, allowing mutton or beef essence, jelly, eggs or Benger's food on the second day, and often fish or chicken on the fourth day. Patients who have been exhausted by weeks or months of vomiting will not stand starvation, and their tissues possess feeble powers of repair unless they be provided with plenty of nourishing food.

Rectal Feeding.—Formulæ for so-called nutrient enemata, composed of eggs, milk, beef tea, etc., still survive in textbooks and hospital pharmacopoias. They are relics of the superstitions of the past. Rectal feeding is really a synonym for starvation. I have satisfied myself by experiment that little, if indeed any, of the constituents of these mixtures is absorbed. After an ordinary abdominal section, usually the patient can take enough nourishment by the mouth, and the fluid required by the body can be administered by the rectum in the manner already described. In cases of septic peritonitis, as a rule, the patients have been in good health up to the time of the onset of the illness, and can do without much nourishment until food can be administered by the mouth. In these patients it is fluid that is required rather than nourishment. In those exceptional cases in which nourishment is necessary, and cannot be given by the mouth, I add glucose to the saline injection.

The Bowels.—I regard the early opening of the bowels as one of the important points in the treatment of patients after abdominal operations. The sooner the bowels are opened, the sooner is the patient out of danger. If the preparatory treatment has been carried out as described there is usually no trouble with the bowels. If the patient is not vomiting, paraffin is continued after the operation as before—a tablespoonful is given on the night of the operation, a tablespoonful on the following morning, and the full dose on the second night and continued thereafter. If the

# Fibrositis.

By J. E. R. McDONAGH, F.R.C.S. Surgeon to London Lock Hospital, etc.

IBROSITIS is an inflammation of the supporting tissue of the body, which includes, apart from the fibrous tissue, such structures as muscles, tendons, bursæ, joints, blood-vessels, and It is seldom that the fibrous tissue alone is picked out, hence fibrositis is more often one of the manifestations of a general involvement of the supporting tissue than a clinical entity. Though fibrositis may be an acute condition, and the cause of the same be ascertainable, it is more frequently met with in its chronic form. Even acute fibrositis is more often than not an exacerbation of a pre-existing lesion. Chronic fibrositis may not give rise to clinical symptoms till all the signs of what we understand by inflammation have vanished, and in these cases we are dealing more with the result of what has been than with an actively progressive lesion. Exactly the same state of affairs is met with in arteriosclerosis, osteo-arthritis, and induratio penis plastica.

As the cases of chronic fibrositis exceed the acute, and the majority of the cases of acute fibrositis are merely exacerbations of a pre-existing lesion; as, moreover, the exacerbation may be produced by a different agent from the one which set the process in motion, it happens that in a large percentage of our cases the fons et origo mali must remain a mystery. The only object in finding the cause is to remove it, because specific treatment of disease is little, if any, better than chemo-therapeutic treatment. But, unfortunately, even though the cause may be found, its removal is often impracticable. Therefore, the subject reduces itself into elucidating the changes which the

come to the conclusion that the period of rest in bed should be lengthened rather than shortened. abdominal operation undoubtedly takes it out of a patient both mentally and physically for some weeks. If they are consulted in the matter they prefer to remain in bed. To insist on their getting out of bed is contrary to the guidance of Nature. That getting patients up is a preventive of embolus or thrombosis. I do not believe for an instant. My view is that the patient should remain in bed for three weeks at least, and in many cases for four weeks. After operation for gastric ulcer in patients who have been losing blood, or who have been on a restricted diet for a long time, the decision as to when to allow them to get up needs some discrimination-often such patients have a weak, flabby heart, and require feeding up, and a course of digitalis and iron, before they are fit for much movement. If they be allowed up too soon they may die quite suddenly from syncope. In such cases a subnormal temperature and a slow pulse should be regarded as danger signals. All patients should wear a firm binder or abdominal belt for six months after operation, and before discarding the belt should have abdominal massage for from two to three weeks. It is advisable for elderly patients to wear a permanent support, such as a Curtis belt with an aluminium plate.

Drainage Tubes.—Drainage tubes are occasionally left in too long, but far more frequently they are removed too soon. Especially is this the case after operations for general suppurative peritonitis, in which it has been necessary to place a drainage tube in Douglas's pouch. Such a tube should be kept in situ for a week at least, and sometimes for longer. If removed earlier it may be impossible to replace it and, as a result of too early removal, a residual abscess may form which may necessitate a further operation for the evacuation of the pus.

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in, or is a manifestation of, a local recurrence of the disease. The focus of infection may be difficult to find unless a careful examination is made. The gonococcus is an organism which may remain dormant for a number of years. It is due to the general failure to recognize these two points that many of the cases of fibrositis are put down to another origin. For example, many of the so-called cases of dysenteric arthritis which I had the opportunity of examining were undoubted cases of gonorrheal rheumatism. Life on the Gallipoli peninsula, from where many of the cases came, caused dysentery, which so lowered the patient's resistance as to enable the gonococcus to wake up and to cause trouble. Though theoretically any micro-organism could cause fibrositis, I doubt whether many cases would be seen if the streptococcus and gonococcus were banished from our midst.

Fibrositis in Women at the Climacteric.—A very large number of women present fibrositis at the climacteric, and I think it deserves to be regarded as a distinct condition. There are two reasons for this view: one being that the condition is probably due to the chemico-physical changes the blood undergoes at this period, and the other, that it responds extraordinarily well to one of the sulphur preparations in particular. The patients complain of pains all over, particularly in the back, and a varying degree of arthritic change is to be found affecting the terminal phalanges of the fingers and the knees. The prognosis is good, and the condition does not tend to progress to one of osteo-arthritis.

Gout.—Gout may be taken as the corresponding condition affecting men. Gout is not a disease sui generis, but merely a clinical manifestation of shock taking place in one of the supporting tissues. In the first instance, the cause is either a micro-organism or a chemical

blood and tissues undergo in chronic rheumatic affections, and endeavouring to find out how these changes can be combated by chemo-therapeutic measures. Chronic inflammation of the supporting tissue, or, for short, "fibrosis," is the result of the protein particles losing their water, or undergoing what I term "dehydration." Fibrosis is on all fours with the ageing of rubber. Rubber can be prevented from ageing by vulcanization, and in this process organic preparations of sulphur play a very large part. Sulphur is the best therapeutic agent in fibrosis, and in many instances it acts in the body exactly in the same way as it does in a rubber emulsion.

Fibrositis in Children and Adolescents.—This is an acute form of fibrositis due to a streptococcal invasion. The joints are frequently involved. When the condition first appears there is usually one of the forms of erythema multiforme present. The danger of the condition lies in the damage which may be sustained by the heart. Of all the crippling conditions which may affect young people, acute rheumatism surely takes first place.

Fibrositis in Women During the Child-bearing Period.—
It is in this class of case that the focal infection plays its chief rôle, and it lies most commonly in one of three places: (1) tonsils; (2) teeth; (3) bowel. In the majority of the cases the fibrositis would appear to be due to a streptococcal invasion. The gonococcus is not nearly so frequently to blame as in the corresponding period in man.

Fibrositis in Men between the Ages of 20 and 50.— Though infected tonsils, teeth, and bowel may be the cause of fibrositis in this group of individuals, the gonococcus is undoubtedly the main offender. Gonorrhæal rheumatism rarely occurs during a patient's initial attack. In over 90 per cent. of the cases it either ushers

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lesion in this area would rise rapidly. Owing to the limelight which has been thrown upon gonorrhea it has been thought necessary to undertake daily treatment, with the result that there is more trouble to-day from the over-treatment than from the under-treatment of the infection. Both are bad, but the former is the worse of the two evils.

#### TREATMENT.

In the fibrositis which occurs in young people as one of the manifestations of acute rheumatism the treatment has up to the present been most unsatisfactory. I have been endeavouring for some time to find a chemo-therapeutic drug for use in acute streptococcal infections, and I believe I have succeeded. The drug in question, which I have named for brevity Sup. 468, is a complex symmetrical urea compound, which acts by increasing the patient's resistance through the liberation of three positively charged conductor sodium atoms from each naphthalene ring. 468 is chemically the symmetrical urea of parabenzoyl-para-amino-benzoyl - 1 - naphthylamine - 4-6-8 sodium sulphonate. The drug was kindly prepared for me by Dr. Thomas, attached to the Scottish Dyes, Ltd. The Sup. 468 is injected intramuscularly or intravenously every day, or every other day, in 0.001 gram doses until the condition shows definite improvement. To hasten recovery the dose may be increased by 0.001 gram each time, as it is seldom that more than five injections are required.

Other forms of fibrositis are best treated with intramuscular injections of the carbon disulphide product of diethylamine or contramine, in 0.25-0.5 gram doses. It is not necessary to give more than three injections in any one course.

In cases of gonorrhea this treatment may be supplemented by vaccines, and it is only in this

intoxicant which causes a dehydration of the protein particles in the plasma of such a kind as to interfere with the normal uric acid metabolism. The uric acid formed in excess in the blood is deposited in the supporting tissue rather than passed through the kidneys into the urine. The mere deposition of uric acid does not cause an acute inflammation, it only lowers the resistance of the part. Should any sudden addition to the dehydration be made the protein particles collect in the dilated capillaries of the structures whose resistance has been lowered, and an acute inflammatory condition is occasioned.

Fibrositis in Elderly People.—This is the type to which the term "chronic" can be most justly applied. Chronic fibrositis practically never occurs alone, being merely one of the clinical manifestations of a general fibrosis. All the victims present some degree of arterio-sclerosis, and signs pointing to either pulmonary fibrosis, hepatic sclerosis, or interstitial nephritis. It is quite impossible in these cases to find the original cause of trouble, and perhaps there was not only one, but several.

#### PREVENTION.

Chronic fibrositis is obviously best prevented by leading a well-regulated life and avoiding so far as possible the factors which cause a premature drying of the tissues. Fibrositis due to micro-organisms could be avoided if patients were properly treated when they contracted the infection. This applies particularly to the form produced by the gonococcus.

Gonorrhoeal rheumatism is more common to-day than used to be the case, and in my opinion this is due to the injudicious use of instruments during the acute and sub-acute stages. If it were customary to irrigate the nose in nasal catarrh and to pass nasal dilators and naso-scopes, the incidence of fibrositis due to a focal

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lesion in this area would rise rapidly. Owing to the limelight which has been thrown upon gonorrhea it has been thought necessary to undertake daily treatment, with the result that there is more trouble to-day from the over-treatment than from the under-treatment of the infection. Both are bad, but the former is the worse of the two evils.

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form of fibrositis that vaccines in my hands prove of value.

Climacteric fibrositis should be treated by thiol-histamine, which is best injected intramuscularly on three successive days in 0 002 gram doses. Internally there should be prescribed colloid iodine, thyroid extract and ichthyol, or, better, thiol-amino-methyl-glyoxaline.

In cases where there is great pain and much limitation of movement, and where contramine has proved unavailing, good results may be obtained by injecting 5.0 c.cm. of sterilized milk into the glutæus medius. The reaction is usually severe, but this is warranted by the results produced.

Local treatment is necessary in all cases, but this I need not enlarge upon, except to say that however acute the condition may be splints should never be used. Movements should be instituted at the earliest possible moment, because the pain produced by the formation of adhesions is worse than the pain caused by the trouble itself.

# Tonsillectomy by Propulsion and Avulsion.

By J. BOWRING HORGAN, M.B., CH.B., D.L.O. Hon. Laryngologist to the North Charitable Infirmary, Cork.

OBODY who is as conscious as I am of the controversy which still surrounds the modus operandi in the performance of tonsillectomy could approach that subject with other than diffidence, and without an assurance that any suggestions he might bring forward would be of both sound and practical advantage. I write with such sentiments, and with a desire to place at the disposal of others the knowledge which experience has given me.

The consensus of opinion, having decided that tonsillectomy is the operation of choice in all cases in which the removal of tonsils is indicated, it only remains for us to determine in what manner this may be carried out most safely and expeditiously, and with the least possible loss of blood.

I have had ample practical opportunity of investigating the various methods advocated for the performance of tonsillectomy, and it is to me a matter of no little surprise that the leading laryngologists of to-day are still at variance as to the prior claims of the dissection method, as primarily advocated by Waugh, and the reversed guillotine enucleation method, first described by Whillis and Pybus, of Newcastle, and Sluder, of Chicago. It must be obvious to all that if this latter method does enable us to enucleate the tonsils in all cases, and is not fraught with any inherent difficulty or risk, its superiority to the slower, more difficult, and, there-

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Local treatment is necessary in all cases, but this I need not enlarge upon, except to say that however acute the condition may be splints should never be used. Movements should be instituted at the earliest possible moment, because the pain produced by the formation of adhesions is worse than the pain caused by the trouble itself.

#### TONSILLECTOMY

I use the forefinger of the disengaged hand to depress the tongue and bring the tonsil into view. The ring of the instrument having encircled the tonsil, the latter is lifted forwards above the alveolar eminence of the lower jaw, the thumb or forefinger of the disengaged hand being used to apply counter-pressure through the anterior faucial pillar. At the termination of this movement, and before the blade is made to close, the shaft of the instrument should lie obliquely across the patient's mouth, making an angle of about 45° with the horizontal, in which position its handle should come to lie about the level of the patient's opposite shoulder. A firm hold of the tonsil having been obtained and retained, the final or avulsive movement is initiated as soon as the handle of the instrument has been brought back to its primary position. It is a remarkable fact that the tonsil so held and pulled upon will almost invariably peel cleanly from its bed and not break away. The avulsion is best carried out by a series of very sharp tugs during which the operator's two hands are locked around the handle of the instrument. A great and seemingly alarming amount of traction is often requisite to attain the end in view. The anæsthetist, who stands at the head of the table, must be advised of this manœuvre, so that he may exert steady counter-pressure with both hands which, in this manner, retain the head in its horizontal position.

Ambidexterity in the use of the instrument is essential to the rapidity of action which is desirable. Though I use reflected light, I rely rather on my tactile sense than upon my vision in the proper apposition of the instrument and the digital propulsion of the tonsil within its ring. Facility in these two matters is important if the obvious dangers of delay and the use of throat swabs are to be avoided.

The time occupied in removing each tonsil varies 147

fore, more dangerous dissection method, is incontestable.

I submit here that this hypothesis is a reality, and that by the adoption of the propulsive-avulsive method of guillotine enucleation which I employ, it is possible to remove all varieties of diseased tonsils, at all ages, in the shortest time and with the least possible risk of either primary or secondary hæmorrhage. The arguments which are reasonably put forward by those who criticize the guillotine method are, briefly, that in any but the simplest cases it will not effect an enucleation of the gland, and that it is more apt to be attended with, or followed by, troublesome hæmorrhage. I now propose to describe those variations in the original technique of guillotine enucleation which have enabled me to overcome these objections.

I operate with the patient in the dorsal recumbent position, the head being unsupported, and the whole body well to the right-hand side of the table, on which side I stand. It is important that the table should be low in relation to the stature of the operator. I only use two instruments, a Doyen's gag, and a medium-sized Jenkins' modification of the Ballenger type of reversed-action tonsillectome. It is important that the blade of this instrument should be so blunt that it would, in action, be powerless to sever by manual pressure the bunched-up tissues which it encircles. As obtained from the instrument makers, the instrument is invariably too sharp, and its blade should be reduced to the approximate bluntness detailed above.

In order to achieve a total enucleation in all cases, it is necessary to make sure that the blade of the tonsillectome is of the requisite bluntness, that this blade cuts well home on to a leaded groove, that one obtains a massive, but not necessarily an extra-capsular hold of the tonsil, and that the latter is finally avulsed from its bed and not cut from it.

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147 K 2

from five to ten seconds. It never exceeds fifteen. Two nurses, who are trained to the work, should stand at the left of the table and be ready, at a given signal, to lift the patient on to his right side, the anæsthetist accompanying them with the head. In carrying out this movement it is important to rotate the pelvis through an arc of somewhat more than 90 deg., so that in its final position the pubis is facing slightly downwards. The external gravitation of blood is thus assured.

If adenoids are to be removed, this can now be carried out with leisure and precision by the use of a small, sharp adenotome, the left forefinger being retained in the naso-pharynx to control the site of the growth and the correct apposition of the instrument.

I now come to the second objection, that of hæmorrhage, the solution of which has been given by the facts already stated. I never have other than the most momentary and insignificant hæmorrhage, for the simple reason that I avulse the blood vessels, but do not cut them. It is common knowledge that a whole limb may be avulsed from the body with comparatively little loss of blood. The physiological principle underlying this fact holds good in the case of the tonsil, and when we consider its quadruple arterial blood supply, it is little wonder that all the present methods which involve the use of cutting instruments are, of necessity, fraught with the risk of hæmorrhage, and that the perennial discussions which take place regarding hæmorrhage after tonsillectomy have served but to discredit the operation. I make no secret of the fact that I am now anxious to dispose of a collection of ingenious instruments originally acquired for the control of hæmorrhage after tonsillectomy.

It is difficult to convey in words the ease and celerity with which a clean removal of the tonsils can be effected by this method. It is rarely necessary to make two

#### TONSILLECTOMY

bites at a tonsil, though it occasionally happens, in the case of an elongated tonsil, that the lower or lingual pole evades the instrument at the first attempt. The trained finger of the disengaged hand, which should always be employed to sweep between the faucial pillars immediately the tonsil is removed, will, however, readily detect this failure, and it will invariably be found that by the re-application of the instrument an extra-capsular avulsion has been achieved for each separate portion.

One variety of tonsil alone has given me difficulty, and that is the pale, soft, sarcomatous-looking tonsil, very rarely met with in adolescence. This tonsil will break away where it is constricted, and so frustrate all efforts to properly avulse it. It is, however, a tonsil which will offer equal if not greater difficulties to the blunt dissector.

In conclusion, I plead for a more extended use of the reversed guillotine by the propulsive-avulsive method indicated here. I claim for it that it will save an immense amount of time; that it can be performed under light general anæsthesia, and, when desired, under local anæsthesia; that it causes the minimum amount of faucial deformity; and that the risk of hæmorrhage is, for all practical purposes, non-existent. Briefly, it is short, blunt, but decisive.

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# The Operative Treatment of Diseased Tonsils and Adenoids.

By JOHN R. GRIFFITH, B.CH., F.R.C.S.

Hon. Surgeon, Hove Hospital; Assistant Surgeon, Royal Alexandra Hospital for Sick Children, Brighton, etc.

HERE appears to be no question now that a diseased tonsil is a source of great danger to its possessor, and should be completely re-For some years I used Sluder's reversed guillotine method, and I was very satisfied with it. Watching attempts at removal by other methods, including suspension and dissection, merely confirmed me in my satisfaction. Having heard of Mr. Waugh's method, however, I went one day in a rather sceptical mood to see him operate. I spent two afternoons watching him closely, and I found myself completely converted. By this method the tonsils are removed completely, with certainty, cleanly, and almost bloodlessly, without damaging the pillars of the fauces. His method appeared to present such great advantages that I have entirely given up the use of the guillotine both for children and adults.

The operation is carried out slowly and deliberately, the deep surface of the tonsil is separated by blunt dissection from its bed, the tonsillar vessels are clearly defined before they are divided, and hæmorrhage is stopped immediately by gauze pressure. The faucial pillars with their contained muscles, the palato-glossus and the palato-pharyngeus, are not damaged. There is no aspiration of blood into the larynx or trachæa, and

bleeding is completely stopped before the patient leaves the theatre.

The following special instruments are required:-

- 1. A Waugh's mouth-gag.
- 2. Tongue forceps, the ends of which are curved and pointed.
  - 3. A Waugh's conchotome or tonsil-holding forceps.
  - 4. A pair of long-pointed fine dissecting forceps.
  - 5. A pair of Luc's forceps.
- 6. Swabs 2 in. square, composed of twenty-four layers of gauze.

The patient is laid on a flat operating table, and is deeply anæsthetized until all reflexes are abolished. A sandbag is then placed under the shoulders, and the head thrown well back, anæsthesia being continued with a Junker inhaler. The gag is inserted, bearing on the gums behind the molars, and the mouth gagged widely open. The tongue is drawn well forward with tongue forceps, the points of which are applied on either side of the mid-line well behind the sensitive tip. The operator stands on one side and removes the opposite tonsil, his assistant stands on the other side and holds the tongue forwards. The tonsil is in this way clearly exposed.

The buccal surface of the tonsil is then grasped with

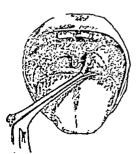


Fig. 1. Line of incision.

Traction on tonsil.

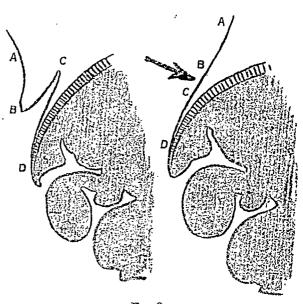
the conchotome close to the reflection of mucous membrane from the tonsil to the anterior pillar. This reflection is then incised with the sharp-pointed dissecting forceps, the incision extending downwards to the tongue, and upwards and backwards towards the posterior pillar.

In order to avoid damaging

the anterior pillar of the fauces, and also to avoid penetrating the capsule of the tonsil, it is of great importance to choose the right point to make this incision. The accompanying diagram represents a section through the tonsil and anterior pillar, and is designed to show the exact position.

The tonsil is normally buried between the pillars.

The anterior pillar is formed of the palatoglossus muscle covered by mucous membrane. which passes from the checkacross the anterior surface and round the inner edge of the muscle to the



F1G. 2.

border of the tonsil where it is attached.

In the diagram, then, the following four points can be marked out on the mucous membrane:

- A. A point on the anterior pillar.
- B. A point on the external fold of the pillar.
- C. A point on the internal fold of the pillar.
- D. A point on the attached edge of the mucous membrane of the tonsil. It should be noted that the area of mucous membrane between C and D is firmly adherent to the tonsil.

Now an incision between A and B must pass through the muscle fibres of the palato-glossus, an incision

#### TONSILS AND ADENOIDS

between C and D where the mucous membrane is adherent to the tonsil capsule must penetrate the capsule, opening up and tearing the tonsil tissue.

The point, therefore, at which to make the incision is between B and C, and this area is put on the stretch by pulling the tonsil forwards and inwards with the conchotome.

It should be noted that the area between B and C

is much smaller and more difficult to identify in a large hypertrophied prominent tonsil causing obstruction than in a deeply - buried tonsil.

The mucous membrane to the outer side of the incision is then stripped outwards,

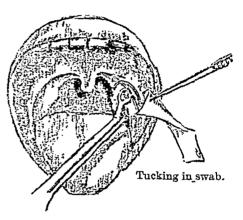
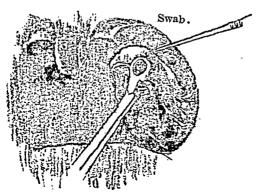


Fig. 3. Exposure of capsule.

exposing the smooth shining surface of the tonsil capsule. The position of the conchotome is then altered so as to grasp as much as possible of the deep surface



Separating tonsil with swabs.

of the gland, The tissues of the tonsil hed are then separated from the capsule by side to side dissection, leaving a pit into which a gauze pad. can be pushed.

Up to this

point the operation should be practically bloodless, the tissues being frequently not even stained with From now, however, the blood-vessels entering the upper pole of the gland are exposed. They are torn through as close as possible to the tonsil capsule, hæmorrhage being immediately stopped by firmly packing in the gauze pad so as to produce pressure over the torn ends.

As the separation of the tonsil continues, its bed becomes more and more occupied by the gauze pad, which is tucked in, pushing the tonsil out towards the midline. The separation is now completed except that the

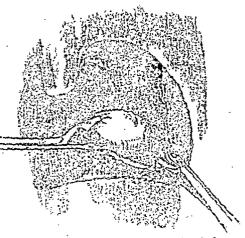
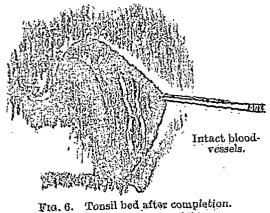


Fig. 5. Detachment of lingual pole by Luc's forceps.

tonsil is held by the lingual pole, and the reflection of mucous membrane from the gland to the posterior



pillar. The latter is separated by the long-pointed dissecting forceps. The lingual pole is then grasped with the Luc's forceps, and very gently separated from

#### TONSILS AND ADENOIDS

its attachment to the base of the tongue.

The operator and his assistant now change sides, and the opposite tonsil is removed in the same way.

The swabs which have been left in the fossæ are removed, and the tonsil beds scrutinized for any bleeding points. It is usual to find no bleeding, but to see the ascending pharyngeal vessels pursuing

their course upwards in the tissues of the tonsil bed. These are the vessels which are in danger of being damaged by a guil-





Fig. 7. No stitching.

Typical deformity after stitching.

lotine, causing at times an alarming amount of bleeding.

Where there is any hæmorrhage it can easily be controlled by stitching the anterior to the posterior pillar. Mr. Waugh does this in every case, and there is no question that his results are excellent. For my part, however, I feel that stitching does produce a certain amount of angulation of the palate, and I also feel that it is better to avoid closing a potentially infected cavity. In my own practice, therefore, I do not stitch as a routine, but only when the removal of the tonsils is followed by hæmorrhage. But I speak with deference to Mr. Waugh's opinion.

When the tonsil beds are completely dry, and not before, the adenoids are removed with a La Force adenotome. This is an instrument made on the guillotine principle, the window being curved to fit accurately the posterior and superior wall of the postnasal space. The cutting part is furnished by a flexible steel blade running in grooves in the window-frame. The instrument is passed behind the uvula and fitted in the post-nasal space. It is adjusted until the adenoids can be felt protruding through the window. The blade

is then closed. The instrument is not immediately removed, but held firmly against the adenoid stalk for two minutes. When it is removed a certain amount of bleeding does take place, but it is very slight, and as a rule can easily be dealt with by mopping out the post-nasal space with a few swabs.

Since commencing to practise the dissection of tonsils, this operation has proved a source of immense interest to me. Its cleanliness and tidiness make it extremely satisfactory to perform. The patients seldom lose any blood at all after their return to the wards, and the subsequent results, both anatomical and functional, have been better than I used to obtain with the guillotine.

I should like here to thank Mr. Waugh for showing me the detail of this operation, and I must also express my thanks to my friend and colleague, Mr. D. A. Crow, who has drawn the illustrations accompanying this article.

## Practical Notes.

The Bactericidal Value of the Gastric Secretion.

H. J. Bartle and M. J. Harkins come to the conclusion that there is an actual bactericidal action constantly being exerted by the gastric juice because of its hydrochloric acid content, and perhaps because of some other element, chemical constituent, or enzyme. Their study of the bacteriological and germicidal values was made on 26 gastric juices and wash waters of various degrees of acidity, from no free hydrochloric acid to a hydrochloric acid value of 100 degrees. Practically no germicidal activity was demonstrated below a free hydrochloric acid value of 10 degrees. Gastric juices containing pure hydrochloric acid of 10 to 20 degrees were more germicidal for the Streptococcus viridans and Bacillus coli communis than for the Staphylococcus aureus, which organism, even in the higher degrees of acidity, has considerable resistance. With solutions of hydrochloric acid in distilled water the results correlated well with those obtained with the gastric juice of the same degrees of acidity. It can be inferred from this study that while many bacteria are killed in transit through the stomach of a man having a normal amount of hydrochloric acid in the gastric juice, many bacteria, perhaps very many of the more resistant types, when clothed about with food particles and mucus, pass through unaffected.—(American Journal of the Medical Sciences, March, 1925, p. 373.)

#### A Case of Santonin Poisoning.

H. Perrier reports a case of santonin poisoning, which shows the danger of chocolate tablets containing santonin being sold without the prescription of a medical practitioner. The patient was a child aged 21, and when seen by Dr. Perrier there was difficulty in standing upright, walking was impossible, the head was hanging, and ptosis of the upper left eyelid was present; the tendinous reflexes were absent, but active movements of the limbs could be carried out; deglutition was normal. Two days later a new symptom appeared, the urine being of a vivid red colour, and chemical analysis showed the presence of santonin. In a few days the condition of the child improved with the administration of urotropin and general treatment. It was found that two boxes of chocolate-coated santonin tablets had been bought by the mother, for threadworms, and the contents had been eaten by the child within ten days, a total of 0.60 grams (9 grains) of santonin having been taken.—(Revue Médicale de la Suisse Romande, March 25, 1925, p. 251.)

#### Treatment of Enlarged Tonsils with X-Rays.

M. V. Leof states that X-rays will remove tonsils of the hyperplastic type almost as surely as the knife, without its risks. He

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#### PRACTICAL NOTES

the chief part of the apparatus was a motor-driven air-blower, which blew warm air into the room, and the chlorine (contained in a cylinder) was mixed with the air as it passed through the blower, the concentration being kept between 0.015 and 0.0175 mg. per litre. The beneficial effects of the treatment were all experienced within the first day after treatment. The percentage of patients who recovered within one day with the chlorine treatment was definitely higher than with the medical treatment; of the group with acute rhinitis, 23.6 per cent. of those treated with chlorine, and 6.7 of those with medical treatment, recovered within one day, and the treatment was apparently more beneficial in acute rhinitis than in any other type of cold. The largest percentages of good results were obtained when the patients were treated on the second or third day of the disease.—(Journal of the American Medical Association, May 30, 1925, p. 1629.)

#### Treatment of Hernia in Infants.

Miss Gertrude Herzfeld notes that opinion is divided as to the relative merits of operation and conservative treatment for the care of hernia in infants and young children, and that where operation is advised authorities differ greatly as to the most suitable age. As a result of her experience in the Edinburgh Royal Hospital for Sick Children she has come to the conclusion that operation for the radical case of inguinal hernia can safely be performed at any age, provided that the infant is thriving; and in 1,000 cases operated on by the method which she describes (in which there is no interference whatever with the canal, for, in children, this structure is not at fault), the cure has proved complete. For the purpose of this operation it is neither necessary nor desirable to remove the infant from its home surroundings. The operation may be done from the age of one month, and, in the author's experience, the younger the infant the less is the general disturbance.—(Edinburgh Medical Journal, June, 1925, p. 281.)

#### Treatment of Whooping Cough.

F. van der Zande states that he has been treating all cases of whooping-cough for the past three years with a vaccine, the injections being given hypodermically at three-day intervals, and four or five doses being given. He sums up that in 41 cases the result was very good, in 5 cases satisfactory, and in 6 cases the treatment failed. He suggests that the failures are due to there being two different strains of whooping-cough bacilli, and that the vaccine prepared from one strain has no effect on an infection due to the other.—(Nederland Tijdschrift von Geneeskunde, April 4, 1925, p. 1475.)

#### Treatment of Goitre with Iodine.

E. Bircher suggests that the undoubted increase in Switzerland of toxic goitre may be due to the treatment of simple goitres with

asserts that a study of more than thirty thousand patients from various sources, one to four years after operation upon the tonsils, shows permanent results in only about one-half of the total number. The tonsil has a function, and care should be taken to preserve this, especially in children; greater care should especially be taken in selecting patients for operation. In Dr. Leof's opinion, X-rays and radium offer a safe method of treatment in selected cases; his results in children and adults have been most striking in cases of the decided lymphoid hyperplasia type, and also in patients with cervical adenitis associated with diseased tonsils.—(Medical Journal and Record (New York), May 6, 1925, p. 561.)

#### The Prevention of Complications during the Puerperium.

F. Lichtenstein emphasizes the importance of keeping the uterus as small in size as possible after the child has been delivered, as a means of preventing puerperal complications. He first catheterizes the patient, and then makes her squat down at once when the child has been born, and again resume that position for three-quarters of an hour after the placenta has been expelled. The reason he gives for this method of treatment is that the intra-abdominal pressure is two-and-a-half times greater in the erect than in the recumbent position. Among his cases there was no atonia uteri, no chills, and the bleeding was less than is usual.—(Munchener Medizinische Wochenschrift, April 10, 1925, p. 586.)

#### Treatment of Ulcerative Stomatitis.

M. Sabrezès states that in the treatment of severe ulcero-membranous stomatitis he has found the following local applications of considerable value:

R. Arsenobenzol - - - g. 1 (gr. xv)
Glycerine - - - g. 30 (5j)
To be applied to the affected parts.

R. Methylene blue - - - - g. 3 (gr. xlvi) Glycerine - - - g. 30 (- 5j )

Before these are used the ordinary mouth washes should be tried, such as a warm solution of hydrogen peroxide, normal saline, or of bicarbonate of soda, or bicarbonate of soda powder may be swabbed on the ulcers. Antiseptic mouth washes are not of much value in the condition.—(Journal des Praticieus, June 6, 1925, p. 377.)

#### Value of Chlorine in the Treatment of Colds.

H. S. Diehl states that most of the opinions given as to the value of the various forms of treatment for colds have been made without careful analyses of results and comparisons with control series. He has therefore compared the results of the chlorine treatment of 425 students with colds as compared with the results of the medical treatment of 392 other students. For the purpose of giving the chlorine treatment a small room, 10 ft. by 8 ft. by 8½ ft., was used;

#### PRACTICAL NOTES

the chief part of the apparatus was a motor-driven air-blower, which blew warm air into the room, and the chlorine (contained in a cylinder) was mixed with the air as it passed through the blower, the concentration being kept between 0.015 and 0.0175 mg. per litre. The beneficial effects of the treatment were all experienced within the first day after treatment. The percentage of patients who recovered within one day with the chlorine treatment was definitely higher than with the medical treatment; of the group with acute rhinitis, 23.6 per cent. of those treated with chlorine, and 6.7 of those with medical treatment, recovered within one day, and the treatment was apparently more beneficial in acute rhinitis than in any other type of cold. The largest percentages of good results were obtained when the patients were treated on the second or third day of the disease.—(Journal of the American Medical Association, May 30, 1925, p. 1629.)

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asserts that a study of more than thirty thousand patients from various sources, one to four years after operation upon the tonsils, shows permanent results in only about one-half of the total number. The tonsil has a function, and care should be taken to preserve this, especially in children; greater care should especially be taken in selecting patients for operation. In Dr. Leof's opinion, X-rays and radium offer a safe method of treatment in selected cases; his results in children and adults have been most striking in cases of the decided lymphoid hyperplasia type, and also in patients with cervical adenitis associated with diseased tonsils.—(Medical Journal and Record (New York), May 6, 1925, p. 561.)

#### The Prevention of Complications during the Puerperium.

F. Lichtenstein emphasizes the importance of keeping the uterus as small in size as possible after the child has been delivered, as a means of preventing puerperal complications. He first catheterizes the patient, and then makes her squat down at once when the child has been born, and again resume that position for three-quarters of an hour after the placenta has been expelled. The reason he gives for this method of treatment is that the intra-abdominal pressure is two-and-a-half times greater in the erect than in the recumbent position. Among his cases there was no atonia uteri, no chills, and the bleeding was less than is usual.—(Munchener Medizinische Wochenschrift, April 10, 1925, p. 585.)

#### Treatment of Ulcerative Stomatitis.

M. Sabrezès states that in the treatment of severe ulcero-membranous stomatitis he has found the following local applications of considerable value:

R. Arsenobenzol - - - g. 1 (gr. xv) Glycerine - - - g. 30 (5j) To be applied to the affected parts.

R. Methylene blue - - - - g. 3 (gr. xlvi) Glycerine - - - g. 30 (- 5j )

Before these are used the ordinary mouth washes should be tried, such as a warm solution of hydrogen peroxide, normal saline, or of bicarbonate of soda, or bicarbonate of soda powder may be swabbed on the ulcers. Antiseptic mouth washes are not of much value in the condition.—(Journal des Praticiens, June 6, 1925, p. 377.)

#### Value of Chlorine in the Treatment of Colds.

H. S. Diehl states that most of the opinions given as to the value of the various forms of treatment for colds have been made without careful analyses of results and comparisons with control series. He has therefore compared the results of the chlorine treatment of 425 students with colds as compared with the results of the medical treatment of 392 other students. For the purpose of giving the chlorine treatment a small room, 10 ft. by 8 ft. by 8½ ft., was used;

asserts that a study of more than thirty thousand patients from various sources, one to four years after operation upon the tonsils, shows permanent results in only about one-half of the total number. The tonsil has a function, and care should be taken to preserve this, especially in children; greater care should especially be taken in selecting patients for operation. In Dr. Leof's opinion, X-rays and radium offer a safe method of treatment in selected cases; his results in children and adults have been most striking in cases of the decided lymphoid hyperplasia type, and also in patients with cervical adenitis associated with diseased tonsils.—(Medical Journal and Record (New York), May 6, 1925, p. 561.)

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## Reviews of Books.

Manson's Tropical Diseases. Edited by Philip H. Manson-Bahr, D.S.O., M.A., M.D., D.T.M. & H., F.R.C.P. Eighth edition. Pp. xx and 895. London: Cassell & Co., Ltd. 31s. 6d. net.

SINCE the publication of the former edition of this book tropical medicine has had to deplore the death of Sir Patrick Manson, the original author. This eighth edition has been drastically revised and remodelled, though retaining much of its original form. The type, paper, and general "get-up" of the volume are all that can be desired, and the number of excellent illustrations, admirably reproduced, and several coloured, enhances its value as a textbook. new feature is the introduction of six maps showing the distribution of tropical diseases. The descriptions of the clinical features and diagnosis of the diseases are full and lucid, and treatment is discussed in some detail. The section on medical zoology, which has been rewritten with the help of several experts, and occupies nearly 200 pages, gives descriptions of the principal insects, arachnida, mollusca, helminths, etc., of importance to the medical practitioner, but we think the synopsis of families of venomous snakes is hardly full enough to be of value to the non-expert. On p. 622 dermatitis caused by mites is termed "acarime dermatomycosis." Surely "mycosis" should be reserved for conditions caused by hyphomycete and allied vegetable organisms? The book is thoroughly up-to-date, and gives an admirable presentation of the subjects included under tropical medicine, and although so much new matter has been incorporated, remains of handy size, being actually some seventy pages shorter than the previous edition.

A Practice of Gynecology. By HENRY JELLETT, M.D., F.R.C.P.I. Fifth edition. Pp. 744. London: J. and A. Churchill. 25s. net.

The appearance of a fifth edition of Dr. Jellett's well-known book is further evidence, if such were needed, to indicate the popularity it has attained. This edition has been brought thoroughly up to date, and new sections have been added on "Gas inflation of the peritoneal cavity and of the Fallopian tubes," "Ovarian transplantation, the treatment of uterine prolapse," and on "Implantation adenomata of endometrical origin." New chapters have been added on "Sterility" and on "The general principles which govern gynæcological operations." In writing the chapter on menstruation and its disorders, Dr. Jellett acknowledges his indebtedness to the monograph on the subject by Dr. Emil Novak. This edition can be recommended with confidence as an up-to-date presentment of the practice of gynæcology. It is well arranged and well written, and the illustrations, 417 in number,

iodine. In Switzerland, he states, there are now over 3,500 cases of exophthalmic goitre, and 2,000 cases in which adenomatous goitre has been affected for the worse by iodine have been reported in that country. In the author's opinion small doses given over a long period are more injurious than single large doses. He advises combining phosphates, calcium, quinine or silicates with the iodine.—(Klinische Wochenschrift, April 16, 1925, p. 742.)

#### Treatment of Gastric and Duodenal Ulcer.

T. C. Greene discusses the treatment of gastric and duodenal ulcer, and comes to the conclusion that in dealing with large numbers surgery gives better results than medicine. If medical treatment were entirely free from danger there would be no hesitation in following it first, even if it were seldom successful; for the risk of an operation would be avoided should the medical treatment prove successful. The weakness of medical treatment is, however, that it may relieve without curing. The insidious manner in which gastric hæmorrhage may occur is shown by a study of twenty-five cases. In twelve of them hæmatemesis was the first sign or symptom of any disturbance; in seven cases the hæmorrhage was the first indication of trouble after complete relief for a considerable time; four patients were awakened from sleep by the hæmorrhage. Of 117 patients treated surgically, 79.5 per cent. obtained complete relief; 14.5 per cent. partial relief; 5.1 per cent. had no relief; and 0.9 per cent. suffered a hæmorrhage; all cases obtaining no relief underwent a second operation, which was successful in all the cases.—(Boston Medical and Surgical Journal, June 18, 1925, p. 1207.)

#### Treatment of Appendicitis.

C. Clavelin agrees with the statement made by Dieulafoy so long ago as 1896 that there is no medical treatment of appendicitis, but that early intervention by a surgeon must be sought. In 1920 Tuffier suggested that the employment of vaccines as an adjuvant to operation might be tried. Dr. Clavelin states that he has had excellent results from combining early appendicectomy with sero-Of forty-four successive cases of appendicitis he was able to operate on ten within twelve hours of the onset, fifteen within thirteen and twenty-four hours, fourteen between twentyfive and forty-eight hours, four between forty-nine and seventytwo hours, while one case arrived on the tenth day. In twenty-seven of these cases peritonitis more or less purulent was present; in twelve cases the appendix was gangrenous, and in five it was perforated and within an encysted abscess. In forty-one of the cases Dr. Clavelin employed Vincent-Stodel's anti-gangrenous serum, with anti-colonbacillus serum, omitting it in those cases in which there was simple congestion only of the appendix; 40 c.cm. of the serum was introduced into the peritoneal cavity, and 40 c.cm. of the antigangrenous serum and 20 c.om. of the anti-colonbacillus serum given subcutaneously, adding anti-streptococcal serum intravenously in hypertoxic cases. Of the forty-four cases not one ended fatally. -(Le Progrès Médical, June 27, 1925, p. 972.)

# Preparations, Inventions, Etc.

#### JECOMALT.

(London: Messrs. A. Wander, Ltd., 184 Queen's Gate, S.W.7.)

It is unnecessary nowadays to emphasize the important qualities possessed by cod-liver oil, but it is unfortunately true that many of the patients who would derive most benefit from taking it are unable to do so because of its peculiar and disagreeable flavour and its oily nature. Messrs. Wander have, therefore, introduced "Jecomalt," which is a brown granular powder consisting of dry malt extract in combination with 30 per cent., by weight, of cod-liver oil, and is put up in tins. The powder has an agreeable smell and taste, like that of a biscuit, and certainly has no taste or odour of cod-liver oil. We can thoroughly recommend it.

#### STAPHAR.

(London: Messrs. Dick, Coates & Co., 41 Great Tower Street, E.C.3.)

Staphar is the name given to a disintegrated staphylococcus vaccine, which is stated to contain all the fixed partial antigens of the staphylococci, and especially the lipoid, which has been enriched by the mast breeding process. The vaccine is issued in one strength of 1/1,000, and 1 c.cm. of staphar contains 1 mg. of disintegration-residue of the mast-staphylococci. The vaccine is indicated especially in furunculosis, venereal buboes, pyodermia, acne, etc., and is given by subcutaneous or intramuscular injection.

#### IODOSAL.

(London: Messrs. Francis Newbery and Sons, Ltd., 27-28 Charterhouse Square, E.C.1.)

Iodosal is an iodized table salt which has been prepared as a prophylactic against goitre, for it is now generally admitted that the regular use of such a salt is probably the best means of goitre prophylaxis, as experience in Switzerland, New Zealand, and the United States has shown. In iodosal a certain small proportion of iodine is combined with refined sodium chloride, magnesium carbonate and calcium phosphate.

#### WIESBADEN GOUT WATER.

(London Agents: Messrs. Hertz & Co., 9 Mincing Lane, E.C.3.)

We have received samples of Wiesbaden gout water, hot-spring water, drinking salts, bath salts, and pastilles, the foundation of all of which are the salts contained in the famous springs of Wiesbaden. The chief constituents of these waters are sodium bicarbonate and sodium chloride, with smaller quantities of sodium

add further lucidity to the text. Dr. Jellett has done his work well, and this edition is likely to prove even more successful than its predecessors.

The Diagnosis of Children's Diseases. By Professor E. Feer; translated by Dr. Scherer. London: J. B. Lippincott Co. 35s. net.

This well-known textbook, which has reached its third edition, is admirably illustrated, and the translation has been well done, so that it is possible to read the volume without being constantly reminded that it is not presented in the original language. At the same time the American form of spelling of certain words is distinetly curious; it is difficult to imagine any justification for the word "rickitic." Professor Feer has accomplished a task which presents a number of problems of arrangement; he has taken the chief symptoms and tried to give an account of the various conditions which may give rise to them. In many instances this is obviously a method of value, but in other examples it leads to a somewhat fragmentary exposition of the subject. For example, if we look for an account of the signs and symptoms which will enable us to make a diagnosis of rickets in the earliest stages we shall look in vain. And the same is true to a less extent of chorea. It is possible to hunt without success for any mention of the connection between rheumatism and choreic movements. Such defects are, however, we believe, almost inseparable from the main design of the book, and on the other hand, the arrangement avoids a good deal of repetition, and presents in an accessible form many of the problems of diagnosis which often confront the physician. think that the strong point of the book is the presentation of the rarer manifestations of disease, which are less familiar to the student. The phenomena which are not of everyday occurrence are not only well described, but are, whenever possible, illustrated with drawings and photographs, which, for the most part, are of excellent quality. The conclusion to which we have come is that this is not a book which should be recommended to any but the senior student or the accomplished practitioner; for the beginner it is too fragmentary and discursive; but for reference purposes and to refresh the memory about the rarer manifestations of disease it will be found extremely valuable.

Essentials of Infant Feeding. By E. A. BARTER. Cr. 8vo. London: H. K. Lewis & Co., Ltd. 3s. 6d. net.

This is a useful little book of under a hundred pages, which has been put together as a result of the author's experience at the Welfare Clinic at University College Hospital. There are, of course, statements in it for which the author cannot expect to find universal acceptance, but the aim of the book is not so much controversial as to give an accurate account of methods which have actually been proved in use. It contains in small compass a great deal of information which will be found useful.



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#### VACCINEURIN.

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Vaccineurin is the name given to a bacterial autolysate prepared from Staphylococcus pyogenes and Bact. prodigiosum. It is stated that favourable results have been obtained by injecting the preparation intramuscularly, in doses of I c.cm., in cases of sciatica, facial and radial paralysis and paresis, and in tabetic processes, and the preparation deserves to be given a thorough trial.

#### PHARMACEUTICAL SPECIALITIES.

(London: Messrs. May and Baker, Ltd., Battersea, S.W.11.)

With the title of "Pharmaceutical Specialities," Messrs. May and Baker have issued a useful little book dealing with the various preparations made by this firm. Among the newer preparations which are included are soneryl, a sedative and analgesic which avoids the dangerous properties of morphia and veronal, and stovarsol, which has had beneficial effects in the treatment of amœbiasis and yaws. There are useful short tables of weights, volumes, and conversions.

#### ICHTHYOL.

(London: Messrs. W. Dederich, Ltd., Stanley House, Dean Stanley Street, Westminster, S.W.1.)

Messrs. Dederich state that they have been appointed sole agents in Great Britain for the original ichthyol, which was favourably and widely known in this country, particularly for its action in diseases of the skin, before the war. Ichthyol is manufactured from a mineral deposit found near Seefeld, in the Tyrol, and is distinguished from other sulphonated schist oil preparations by its high percentage of sulphidic sulphurs.

#### BIOLOGICAL THERAPY.

(London: Messrs. Parke, Davis & Co., Ltd., Beak Street, W.1.)

Under the title of "Biological Therapy" Messrs. Parke, Davis & Co. have issued a handsomely produced volume. The first part is devoted to vaccine therapy; the introduction to this has been written by Sir Almroth Wright, and the remainder contributed by members of the staff of the Inoculation Department of St. Mary's Hospital. An excellently clear and practical account is given of vaccines and their uses. The second part of the volume includes sections on serum therapy, "phylacogen" therapy, gland therapy, and protein sensitization. The whole volume reflects credit on the authors and on the firm which has issued it.



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Casein	3.0	0.9	0.8
Lactalbumen	0.3	0.4	0.0
Salts (mineral)	0.8	02	0.0
Water	87:7	887	88.3
	100:0	100.0	100.0

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#### APPOINTMENTS.

No charge is made for the insertion of these notices: the necessary details should be sent before the 14th of each month to The Editor, THE PRACTITIONER Howard Street, Strand, London, W.C. 2, to secure inclusion.

- ALLAN, MALCOLM, M.B., Ch.B. Glas., appointed Casualty House Surgeon to the Salford Royal Hospital.
- BAILEY, HAMILTON, F.R.C.S., appointed First Resident Surgeon, Dudley Road Hospital of the Birmingham Union.
- BRAITHWAITE, L. R., M.B., Ch.B. Manch., F.R.C.S.Eng., appointed Director of Surgical Research in the University of Leeds.
- BRAMWELL, J. CRIGHTON, M.D. Manch., appointed Honorary Assistant Lecturer in Experimental Physiology in the University of Manchester
- CALYERT, E. G. B., M.D., M.R.C.P., appointed Physician with charge of Outpatients to the Royal Northern Hospital, Holloway.
- COLLINSON, H., M.S.Lond., F.R.C.S. Eng., appointed Professor of Clinical Surgery in the University of Leeds.
- DAWSON, GEORGE ALEXANDER, M.D., B.Ch., B.A.O., D.P.H.Belf., appointed Deputy Medical Officer of Health, V.D. Officer, and Assistant School Medical Officer, Darlington County Borough, Durham.
- DICKSON, AGNES F., M.B., Ch.B., Glas., appointed Resident Medical Superintendent at Darnley Hospital, Rentrewshire, and Assistant Medical Officer in connection with Maternity Service and Child Welfare Work in the County.
- DIGGLE, F. HOLT, F.R.C.S., appointed Honorary Assistant Lecturer in Physiology in the University of Manchester.
- DOBSON, J. F., M.S.Lond., F.R.C.S. Eng., appointed Professor of Clinical Surgery in the University of Leeds.
- FAIRLIE, MARGARET, M.B., Ch.B. St.And., appointed Assistant Obstetrician and Gynecologist to the Dundee Royal Infirmary.
- FAULKNER, H. A., M.R.C.S., L.R.C.P.Lond., B.V.Sc., appointed a Member of the Honorary Medical Staff of the Willesden General Hospital.
- GILMOUR, J., M.S.Durh., F.R.C.S. Eng., appointed Honorary Assistant Surgeon, Royal Victoria Infirmary, Newcastle-on-Tyne.
- HANNA, HENRY, M.B., B.Ch., appointed Medical Referee, under the Workmen's Compensation Acts (Northern Ireland) for the County of Antrim and the County and City of Belfast.
- HARRIES, EMRYS, M.R.C.S., L.R.C.P., appointed Junior Assistant Medical Officer at the Joint Counties Mental Hospital, Carmarthen.

- HODGSON, H. K. GRAHAM, M.B., B.S.Durh., D.M.R.E.Cantab., appointed Honorary Radiologist to King's College Hospital.
- HOSKINS, W. D., M.R.C.S., L.R.C.P., appointed Certifying Factory Surgeon for the St. Just District, co. Cornwall.
- INGRAM, JOHN T., M.B., B.S.Lond., appointed Physician to Out-patients at the Evelina Hospital for Sick Children, Southwark.
- KNIGHT, H. E., M.D.Lond., appointed Honorary Physician to Rotherham Hospital.
- LANE ROBERTS, C. S., F.R.C.S., appointed Obstetric Surgeon with charge of Out-patients to the koyal Northern Hospital, Holloway.
- LANGLEY, G. J., M.D.Lond., appointed Honorary Assistant Lecturer in Physiology In the University of Manchester.
- LOWE, GEOFFREY B., M. A. Cantab., D.O. Oxon., M.R.C.S. Eng., appointed Honorary Ophthalmic Surgeon to the Royal East Sussex Hospital, Hastings.
- MADDEN, FRANK COLE, M.D. Melb., F.R.C.S.Eng., appointed Emeritus Professor of Surgery in the Royal School of Medicine, Cairo, and Consulting Surgeon to the Kasr-el-Aimy Hospital.
- MAGEE, ANDREW Y., M.E., Ch.B. Glas., appointed House Physician to the Salford Royal Hospital.
- MOFFAT, JAMES, M.B., Ch.B.Glas., appointed Medical Officer of Health to the Durham Rural Council and Medical Officer to the Houghall Isolation Hospital.
- MOODIE, A. R., M.D.St.And., F.R.C.S.E., appointed Ophthalmic Surgeon to the Dundee Royal Infirmary.
- SAVIN. LEWIS H., M.R.C.S.Eng., L.R.C.P., appointed Third Assistant Medical Officer to St. Marylebone Hospital, Rackham Street, W.10.
- SPONG, YICTOR A., M.R.C.S., L.R.C.P., appointed Assistant School Medical Officer and Assistant Medical Officer of Health for Dudley.
- SYMONS, A. D., M.D. M.R.C.S., D.P.H., appointed Medical Officer of Health and School Medical Officer Shrewsbury.
- WARBURTON, EDWARD J., M.R.C.S., L.R.C.P.Lond., appointed House Surgeon to the Salford Royal Hospital.
- WILKINSON, A. GEDEN, M.B., Ch.B.Manch., D.P.H., D.T.M., appointed Part-time Medical Officer of Health for the Egham Urban District.
- WILSON, R. B., M.B., B.Ch., B.A.O. Belf., appointed Assistant Physician at Glengall Hospital, Ayr.



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#### CONCLUSION.

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Excellent reports have been received by us of its use in the treatment of CHRONIC BRONCHITIS, BRONCHIECTASIS (especially FOETIDA) PNEUMONIA, LARYNGITIS, PHARYNGITIS, ANGINA, ond RHINITIS.

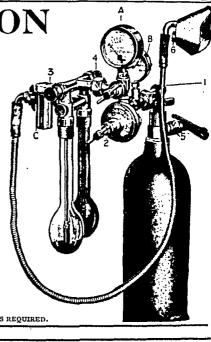
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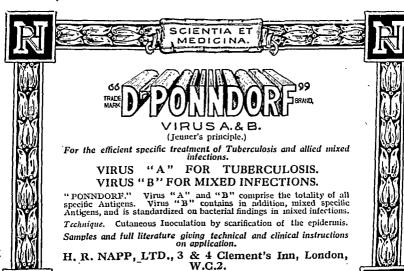
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Doctors are requested to prescribe the "Ichthyol" brand. A large number of other sulphonated schist-oil preparations are on the market, but the "Ichthyol" brand is the original one, and good results of its use have been reported in the medical literature of the last forty years.

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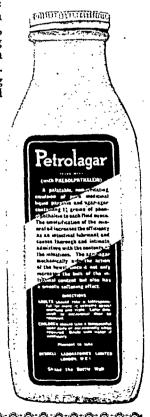
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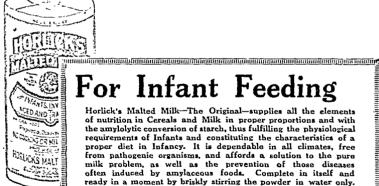
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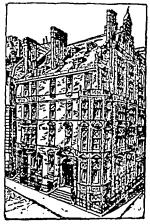
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Physiology of the Nervous System: A. Ninian Bruce, M.D., D.Sc.

Medicine: George Lovell Gulland, C.M.G., M.D. Surgery : D. P. D. Wilkie, M.D., Ch.M. Midwifery and Gynacology: Benjamin P. Watson.

Clinical Surgery: John Fraser, Ch.M., M.D. Clinical Medicine: Edwin Bramwell, M.D.; George Lovell Gulland, C.M.G., M.D.; D. Murray Lyon,

M.D. Tuberculosis: Sir Robert W. Philip, M.D. Therapeulics: David Murray Lyon, M.D. Psychiatry: George M. Robertson, M.D.

#### LECTUDEDS

Experimental Pharmacology: (Vacant).
Pathology: R. D. Mackenzie, M.B.; Theodore

Rettie, D.Sc. Morbid Anatomy: J. Davidson, M.B.

Moroid Anadomy: J. Davidson, M.B.
Bacteriology: George Buchanan, M.B.
Physics: G. A. Carse, M.A., D.Sc.
Diseases of the Larynx, Ear, and Nose: John S.
Fraser, M.B.; J. D. Lithgow, M.B.; W. T.
Gardiner, M.B.; G. Ewart Martin, M.B.
Tropical Diseases: I,t.-Col. E. D. W. Greig, C.L.E.,
M.D.

Medical Entomology and Paravitology: J. H. Ashworth, D.Sc., F.R.S.; W. S. Patton (Major,

I.M.S.).

Tropical Hygiene: J. B. Voung, M.B., D.Sc. (conjointly with Professor).

(conjointly with Professor).

Diseases of the Skin: Frederick Gardiner, M.D.;
R. Cranston Low, M.D.

R. Cranston Low, M.D. Clinical Instruction in Infections Fevers: Alexander James, M.D.; W. T. Benson, M.D. History of Medicine: J. D. Comrie, M.A., B.Sc., M.D. Surgical Pathology: J. M. Graham, M.B., Ch.M. Practical Anasthetics: J. Stuart Ross, M.B. (Demonstrator).

Venereal Diseases: David Lees, D.S.O., M.B. Psychology: J. Drever, M.A., B.Sc., D.Phil.

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By authority of the Senatus,

W. A. FERMING. Secretary

July 1925. W. A. FLEMING Secretary

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#### SYLLABUS-WINTER SESSION.

```
Date
                                                                                                               Technors
        1925.
         6, Tues.
Oct
                          Physiology of the Skin
                                                                                                   Dr. S. E. DORE.
         8, Thurs.
                                                                                                   Dr. J. M. H. MACLEOD.
Dr. A. C. ROXBURGH.
Dr. R. F. FAGAN.
Dr. H. W. BARBER.
                          Anatomy of the Skin .
                          Eruptions due to Physical Causes...
        13, Tues.
15, Thurs.
  ..
                          Pathological Demonstration ...
  ..
                          Tues.
        20, Tues.
22, Thurs.
                             mentary Lesions.
                                                                                            Dr. J. M. H. MACLEOD.
Dr. H. W. BARBER.
Dr. W. GRIFFITH.
                          Immunity. Anaphylaxis
Principles of Treatment. General
Principles of Treatment. Local
Eruptions due to External Irritants
        27, Tues.
  ..
        29, Thurs.
         3, Tues.
5, Thurs.
Nov.
                                                                                             .. Dr. KNOWSLEY SIBLEY.
.. Dr. A. M. H. GRAY.
        10, Tues.
                          Diseases due to Animal Parasites...
                                                                                             .. Dr. H. MACCORMAC.
.. Dr. A. C. RONBURGH.
                          Diseases due to Fungi (1)
Diseases due to Fungi (2)
Diseases due to Fungi (2)
        17, Tues.
19, Thurs.
                                                                                             .. Dr. A. WHITFIELD,
                                                                                            Dr. A. WHITFIELD,
Dr. A. WHITFIELD,
Dr. A. M. H. GRAY,
Dr. A. C. RONBURGH.
        24, Tues.
  ٠.
             Thurs.
                          Bacterial Affections
Dec.
          I, Tues.
                           Seborrhæa. Seborrhæle Dermatitis
                           Acne. Rosacea ..
         3, Thurs
8, Tues.
              Thurs
                                                                                                  Dr. HALDIN-DAVIS.
                          Eczema (1)
                                                                                                   Dr. W. GRIFFITH.
        10, Thurs.
15, Tues.
                          Eczema (2)
                                                                                                   Dr. W. GRIFFITH.
                          Erythemato-Squamous Eruptions
                                                                                                   Dr. S. E. DORE.
        1926.
Jan. 12, Tues.
,, 14, Thurs.
                                                                                            .. Dr. HALDIN-DAVIS.
.. Dr. H. G. ADAMEON
                           Pruritus. Prurigo. Lichenisication
        19, Tues. The Erythemata
19, Tues. Electrotherapeutics
21, Thurs. Pathological Demonstration
26, Tues. The Erythrodermias
28, Tlurs. Pemphigus
2, Tues. Lunus Erythrodermias
                                                                                                   Dr. H. G. ADAMSON
                                                                                            .. Dr. KNOWSLEY SIBLEY.
                                                                                            Dr. R. F. FAGAN.
Dr. H. W. BARBER.
Dr. J. M. H. MACLEOD.
Dr. H. MACCORMAC.
Féb.
         2, Tues.
                          Lupus Erythematosus
Nanthoma Herpes
                          Nanthoma. Herpes
Lichen Planus
Scieroderma. Neurofibromatosis
Tuberculosis Cutis (1)
Pathological Demonstration
Tuberculosis Cutis (2)
Cutaneous Syphilis (1)
Cutaneous Syphilis (2)
Alexanto
        4, Thurs.
9, Tues.
11, Thurs.
16, Tues.
18, Thurs.
23, Tues.
                                                                                                   Dr. A. M. H. GRAY
   ,,
                                                                                                  Dr. GRAHAM LITTLE
                                                                                            Dr. Grandsi (Tries.
Dr. A. C. ROXBURGH.
Dr. J. H. SEQUEIRA.
Dr. R. F. FAGAN.
Dr. J. H. SEQUEIRA.
Dr. WILFRID FOX.
        25, Thurs.
2, Tues.
Mar.
                                                                                                   Dr. WILFRID FOX.
                          Alopecia ..
Nævi ...
          4, Thurs.
                                                                                            .. Dr. S. E. DORE.
          9, Tues.
                                                                                                  Dr. Wilfrid Fox.
Dr. H. G. Adamson.
                           Benign Growths of the Skin
        11, Thurs.
16, Tues.
18, Thurs.
   ٠.
                          Leukaemia Cutis. Mycosis Fungoides

Dr. HALDIN-DAVIS.
Pathological Demonstration

Dr. R. F. B. Carlon
                                                                                                   Dr. R. F. FAGAN.
Dr. H. MACCORMAC.
                          Pathological Demonstration
Malignant Growths of the Skin
         23, Tues.
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Friday, 2 p.m. 6 p.m. Dr. ROXBURGH. 6 p.m. ٠. Dr. ROXBURGH. Dr. ROXBURGH. ٠. Wednesday, 2 p.m. Saturday, 2 p.m. Dr. SIBLEY. . . The MEDICAL Dr. MACCORMAC.

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A. C. ROXBURGH, M.D., Dean.

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Qualified Students are allowed to assist

Outsided Students are anowed to assist the major and perform some minor gynæcological operations.

The Hospital Courses are always going on during the year, and Students can join at any time. The Class is limited, there on during the year, at any time. The Class is limited, therefore it is advisable to register in advance. Board and lodging can be obtained in the Hospital.

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Full particulars from Gibbon Fitz-Gibbon, M.D., Master, Rotunda Hospital.

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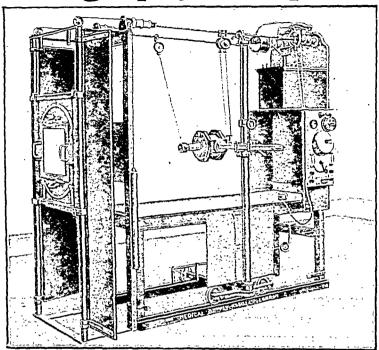
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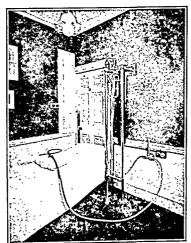
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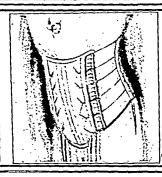
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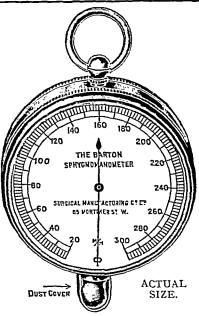
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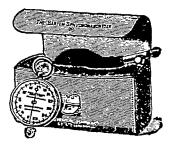
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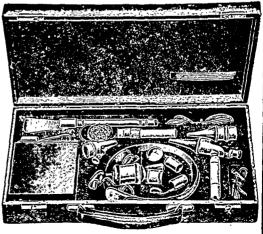
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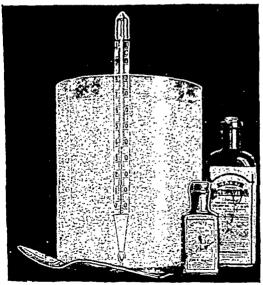
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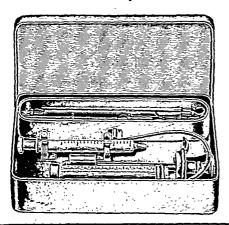
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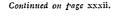
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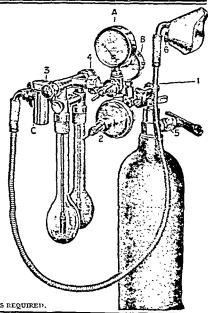
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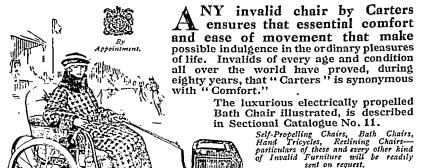
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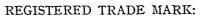
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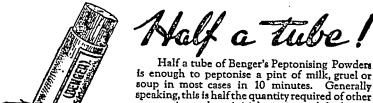
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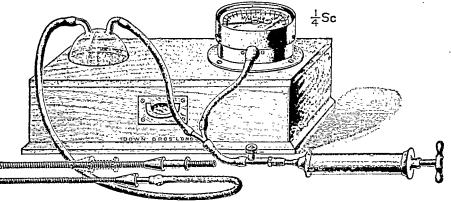
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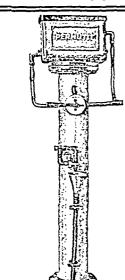
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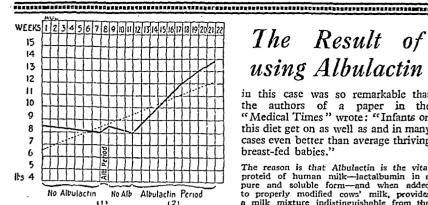
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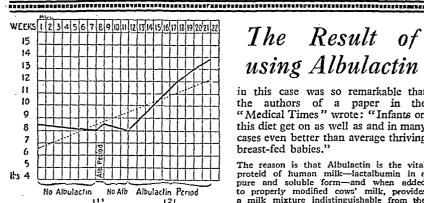
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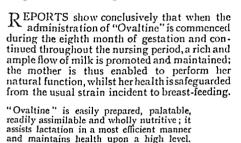
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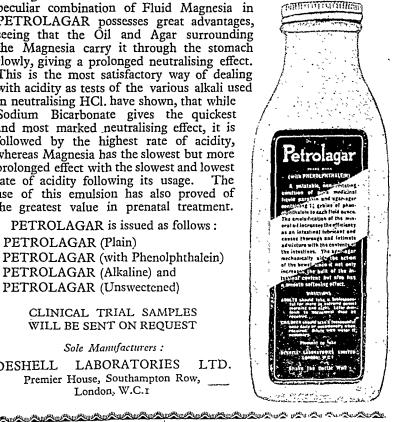
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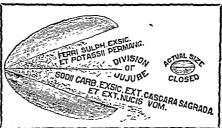


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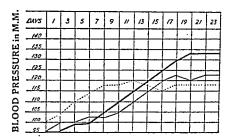
NOTE:—This "Vitamin Concentrate," which is incorporated in Glax-ovo alone, is now sold under the registered name of "OSTELIN." In this form the actual substance is diluted with glycerine so that three drops of the glycerine suspension are equivalent to one teaspoonful of cod-liver oil.

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# The Therapeutic Value of Sanatogen in Convalescence

Three female patients — convalescent from typhoid fever — were the subjects of a well-known physician's recent investigations on the course of blood pressure in convalescence. (See *Medical Echo*, March, 1925.)

One patient was given Sanatogen daily, and the following diagram clearly shows the marked benefits which she derived from this product.



The thick line shows the result of taking Sanatogen (a heaped teaspoonful thrice daily). Normal B.P. 130. The dotted line shows the result of taking a mixture containing one-thirtieth grain of Strychnine in each dose every four hours during the day. Normal B.P. 128. The thin line shews the result of taking a mixture containing two grains of quinine in each dose every four hours during the day. Normal B.P. 130.,

In commenting upon the numerous advantages of Sanatogen the physician says:—"Along with the return of the blood pressure to normal, the Sanatogen-treated patient slept better than the other two, and the sallow, flaccid face typical of typhoid convalescents was not observable in her."

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Colloidal Hydroxide of Aluminium

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"Alocol" does not neutralize acid; it absorbs the excess colloido-chemically and at the same time leaves a sufficiency for normal gastric digestion. The outstanding advantage of "Alocol" as an antacid is that it removes from the system the causative acid radicle (Cl), instead of merely temporarily neutralizing it. "Alocol" can be used for prolonged periods without the slightest harmful effect.

"Alocol" is indicated in all conditions in which diagnosis reveals high gastric acidity. It is particularly valuable in the treatment of chronic affections of the stomach, the dyspepsias, especially those of pregnancy, gastric and duodenal ulcer, gastrosuccorrhea and in conditions characterized by gastralgia, pyrosis, flatulence, acid eructation and other symptoms common to gastric disease.



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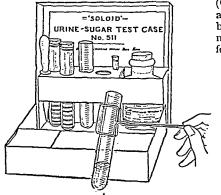
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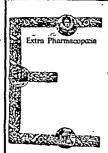
#### **SEPTEMBER**

1925

### Stone in the Bladder.

BY'SIR THOMAS CAREY EVANS, M.C., F.R.C.S. Honorary Surgeon, Hospital for Tropical Diseases, Endsleigh Gardens; Assistant Surgeon, St. Paul's Hospital for Genito-Urinary Diseases Clinical Assistant, St. Peter's Hospital for Stone.

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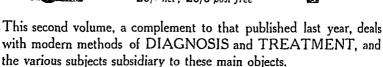
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regard to crystallization that it can only begin in supersaturated solutions. This statement does not apply to the further growth of the crystal once it has formed.

Many years ago Shattock, in his researches, showed that in the formation of stone no foreign material was necessary. Under normal conditions the crystalline substances in the urine are prevented from coalescing into calculi through the influence of colloids normally present in the urine. Some abnormal colloid is necessary for the production of calculi. This doctrine was formulated by Rainey and Ord over fifty years ago. The variation in the normal colloids may be the result of changes in metabolism due to lack or excess of exercise, prolonged errors in diet and climatic conditions, infection of the urinary tract with certain specific bacteria (especially the cocci), which may in some cases upset the normal colloid balance and so lead to the formation of calculi.

The experiments of Rosenow and Meisser on dogs and rabbits show that certain streptococci have a definite elective affinity for the urinary tract, and they were able to produce calculi in a large percentage of the animals experimented upon.

In a recent work published by Keyser on the excretion of oxamid in animals he was able to produce true calculi in 50 per cent. of his cases. He argues that oxamid, being a crystalloid substance foreign to the urinary apparatus of these animals, finds no normal mechanism to prevent crystallization, and it is, therefore, formed into calculi by the normal colloid substances found in the urine.

There is no doubt that there is a very close connection between septic absorption from infective bone lesions and calculus formation. This was proved by the numerous instances of stone formations in the kidneys and bladder in cases of septic bone injuries during the late war. It is, however, safe to state that,

#### STONE IN THE BLADDER

given a nucleus and a nidus where the nucleus may remain stationary for a comparatively short period of time, a stone will follow in due course. We know that a small fragment of stone left in the bladder after lithalopaxy will continue to grow, although the urine may be perfectly normal, or may not even be saturated. There is thus an important mechanical factor in addition to the chemical one in the causation of stone. It is on this mechanical side that heredity may play its part, though that is difficult to estimate.

Heredity, we know, may affect the shape of the pelvis and calyces of the kidney and the conformation of the floor of the bladder, and, given a nucleus under such conditions, stone may rapidly follow. It is quite common in Eastern countries to have to treat both father and son for stone in the bladder. Stone is much more prevalent in certain areas than in others. In England stone is much more common in the Eastern counties than elsewhere, and various theories on the subject have been formulated.

Climate has certainly a very important influence on the formation of stone, and it would be interesting and probably of great assistance were a trustworthy account of the geographical distribution of stone avail-It still remains to be written. "Stone" extremely prevalent in the so-called "dry belts" of the world, such as Northern Africa, Aden, Arabia, Persia, Mesopotamia, and Northern India. In India. stone is much more common in Northern than in Southern India. For instance, the average number of cases operated upon in the Civil Hospital, Hyderabad, Sind, during the course of a year is about a hundred, while in Bangalore, in Southern India, during the same period, in all the hospitals, not more than ten cases would be admitted

In all countries where stone is common you will find extreme heat, varying from 110 deg. F. to 125 deg. F. in

the shade, with intense dry hot winds, which prevail for several months in the year. It must stand to reason that the urine salts are held in solution in a very concentrated form, and are consequently more liable to precipitation, while the difference between the night and day temperature is far greater than in humid and tropical parts, such as Southern India and the sea coasts of India. There is in these countries frequently a drop of 50 deg. to 60 deg. F. between the night and day temperatures. Consequently, there is a far greater strain thrown upon the kidneys generally, and the colloid element in the urine is more likely to undergo changes favourable to the formation of stone. must also be remembered that in these countries bilharzial disease is endemic, and sufferers from this condition are more liable to secondary infection with various cocci, hence the greater frequency of phosphatic stone can in part be attributed to this cause.

Primary calculi are those which form in the presence of uninfected urine, while secondary "calculi" form in the various conditions of urinary infection. The commoner primary types are usually composed of uric acid, the urates of soda and ammonium and the oxalate of lime, while the rarer types are composed of cystine and xanthine. There is one other variety of stone which I have not seen recorded in the various textbooks, or in the literature on the subject, and that is a calculus produced by the calcification of a papilloma. It fell to my lot while in Mesopotamia to remove such a stone from the bladder. The stone was whitish in colour, flattened, and slightly irregular in shape, and about an inch in diameter. Its composition puzzled me greatly, until Sir Arthur Keith very kindly examined it and decided that it was originally a papilloma, which had become calcified.

All these primary types are deposited from acid urine, and the majority of primary calculi have their

#### STONE IN THE BLADDER

origin in the kidney itself. Fortunately for mankind they only rarely remain there; if small enough they pass along the ureter into the bladder, where again they may be expelled by the urethra either at once or after a few days. Usually, as the calculi passes along the ureter the patient suffers the intense agony of renal "colic," the pain originating in the renal region, right or left, and extending over the hip into the groin and testicle, and frequently accompanied by vomiting, and in some cases with varying degrees of shock. Should the calculus remain in the bladder it will increase in size with varying degrees of rapidity by the deposit on its surface of more uric acid, urates, oxalates, or phosphates.

Secondary calculi are found in connection with suppurative changes in some part of the urinary tract, chiefly the bladder or the pelvis or calyces of the kidneys, and are due to the precipitation of phosphates from the urine by certain organisms which have the power of splitting urea with the formation of ammonia. These organisms are usually the pus-forming cocci and the Bacillus proteus; the Staphylococcus albus seems to be particularly involved in this process. In infection of the urinary tract with Bacillus coli, tubercle, and the gonococcus no such decomposition takes place, and the urine remains acid. This alkaline decomposition of the urine renders the solubility of the phosphates of calcium, ammonium, and magnesium highly precarious, and their deposition probable. Phosphatic calculi hardly ever arise from the so-called phosphatic diathesis. Phosphaturia may exist for years and never give rise to the formation of a stone. Phosphatic stones are purely of local formation, and are dependent on an unhealthy state of the urinary tract.

When a uric acid, oxalate, or phosphatic stone is spoken of, it should, as a rule, be understood that the prefix merely indicates the predominant ingredient,

for it is not common to find calculi which consist of one salt only.

When a stone is sawn across the majority will be found to consist of alternating layers arranged concentrically of uric acid, the urates and possibly oxalates as well, and should the calculus excite inflammation of the bladder leading to septic changes, then the deposit of phosphates occurs, and we have both a socalled primary and secondary stone in one. Calculi in early life are more likely to be these former in acid urine than alkaline urine, while in later life, with various obstructive changes, as from stricture and enlarged prostate, phosphatic stones are common. However, no generalization is safe. Phosphatic stones may be found in early life and uric acid, urates, or oxalate stones in later life. The rarer varieties of stone, such as those composed of cystine and xanthine, are more likely to be found pure than those of the commoner varieties.

The nucleus is the most interesting, if not the most important portion of a calculus. In many analyses no attempt has been made to distinguish between the nucleus and the bulk of the stone, so that a classification from this standpoint is impossible. Endless discussion has arisen as to which is the most common variety of stone. In my experience in India and Mesopotamia uric acid and the urates preponderate over other varieties. In some of the Western States of America the oxalate stone is stated to be the commonest variety.

Stones in the bladder are more often single than multiple. Multiple stones are usually faceted from continual rubbing. The largest number of big stones that I have removed from one bladder was eight, and when placed together in the position they occupied in the bladder they approached the dimensions of a tennis ball.

Stones vary greatly in consistency. The hardest

#### STONE IN THE BLADDER

are those composed of oxalate of lime, while the softest are the phosphatic calculi. The shape depends on the cavity they have formed in, and consequently bladder stones are round or oval. I have in my collection bladder stones that were partly in the prostatic urethra and the bladder; these are consequently elongated and constricted in the centre, where they have been gripped by the neck of the bladder, while stones that form in diverticulæ frequently assume grotesque shapes, with a constriction where the neck of the diverticula grips the stone. Oxalate stones depend primarily on the process of crystallization for their shape, and have usually many excrescences on their surface, hence the term mulberry calculus, which is usually applied to this variety.

Colour is a poor index in attempting to determine the composition of stone. However, phosphatic stones are usually white; the uric acid stone is reddish in colour; while the oxalate stone may vary from a jet black, due to blood pigment, to a fawn colour.

Vesical calculi are much less common in women than in men; this is chiefly owing to the comparative ease with which small stones pass out through the female urethra. The proportion is about 3 per cent. of all cases.

I had on one occasion an Arab girl of twelve years of age brought to me by her husband. On examining her I found a fair-sized phosphatic calculus in her vagina. It had perforated its way through the bladder wall into the vagina, leaving a large vesico-vaginal fistula in its track.

Calculus concretions around foreign bodies, such as hair pins, pencils, pins, ligatures, etc., are not uncommon, and the possibility of a stony mass having a nucleus of this kind must not be lost sight of, especially in women.

#### SYMPTOMS.

The most common symptom of stone in the bladder is increased frequency of micturition. It is also the most constant symptom. The patient has had for

some time undue frequency of micturition, which is always more noticeable during the daytime when he is moving about. This is exactly the reverse of what takes place with prostatic enlargement, and is a useful diagnostic sign in consequence. Another common symptom is "pain," and the most characteristic thing about this pain is that it is always increased by movement, whether of the individual or the bladder, and is rarely referred to the bladder itself, but is at the posterior aspect of the glans penis; occasionally the pain may be referred to just within the anus. An individual with stone feels the pain, especially after passing urine, because the mucous membrane of his empty bladder is then in contact with the stone, and also the stone is being carried to the neck of the bladder; severe smarting and a strong desire to urinate persists for an indefinite time, or until sufficient fresh urine has entered to separate the bladder walls from the stone.

In children the pain is much more severe, and should one see a child screaming and shricking in agony during and after micturition, and pulling at its prepuce, one can rest assured that that child has a stone in its bladder. Also, in children, prolapse of the rectum should arouse suspicions. With age the bladder becomes more tolerant of stone, and in the absence of septic changes an elderly person may suffer little or no discomfort or pain whatsoever. Stone is, of course, a frequent accompaniment of enlarged prostate.

The very first case that I operated upon while in Mesopotamia was an elderly Persian gentleman, whose only complaint was that he had a lump over his pubic region which he wished me to treat. He had neither pain nor discomfort, and his only other symptom was slight frequency of micturition. I removed a large calculus suprapubically the size of a fair-sized orange, which weighed 5 ozs. 6 dr. Owing to its size, I had great difficulty in doing so; in fact, the stone had to be broken with a pair of tooth forceps and an ordinary dessert spoon used to remove the fragments. During the war special instruments for bladder work could not be procured.

Large stones give rise to less pain than small ones,

#### STONE IN THE BLADDER

possibly owing to their being more stationary in the bladder. Oxalate stones are usually much more painful than any other variety owing to their rough exterior.

On one occasion, while passing through a small Arab village, my attention was called to a sufferer from stone. The patient was an Arab of about thirty-five years of age, and for the last ten years he had been unable to lie on his back or even stand up. He walked on all fours like an animal, and he had huge callosities on his hands and knees, and dorsum of his feet. He looked the picture of misery. I examined him, and found he had stone, and there and then I operated upon him on an improvised table in the open desert air. I found he had a contracted bladder, very much thickened, which could not be filled with fluid, and the peritoneum could not be pushed out of the way, being firmly adherent to the bladder. It was opened during the operation—in fact, out of a series of 160 suprapubic cases I have operated upon, this was the first occasion for this accident to happen. It was carefully sutured, and when I had news of him later, the patient had fully recovered and had been relieved of his agonizing pain.

It is as well to remember that vesical pain due to stone is, however, in no way characteristic, since the symptoms may be produced by various forms of ulceration at the neck of the bladder from any cause.

Another symptom is hæmaturia, and it generally occurs towards the end of micturition, and is increased by exercise and diminished by rest. It is rarely considerable, and never so profuse as is sometimes seen in prostatic disease, or in growths of the bladder. Pyuria appears with the advent of septic infection. Stoppage of the urinary flow in full stream is the least common symptom, and consists in the sudden stopping of the flow while the bladder still contains urine. It has long been regarded as highly characteristic of stone, and is described in all text-books as one of the cardinal symptoms.

I have not yet met a sufferer from stone who had all these symptoms, but a stone may be found with any one of them.

#### DIAGNOSIS.

The diagnosis has been revolutionized by modern methods. Formerly the diagnosis of stone was a

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Large stones give rise to less pain than small ones,

#### STONE IN THE BLADDER

and sensitive patients. With the cystoscope there is no condition of the bladder more easy of diagnosis. The pictures in text-books are identical with what one sees in the actual bladder in cases of stone. The contour of the stone is sharp and defined, and even the colour can be distinctly made out. The stone can be touched and moved about with the beak of the cystoscope. Occasionally ulcerated growths with a deposit of phosphatic salts may confuse the issue. Such cases, as a rule, can be cleared up by touching the part with the instrument. A crusted growth has not the solidity of stone, and usually bleeds on slight manipulation. The residual urine which occurs in cases of stone and enlarged prostate, a common combination, is an important factor in the prognosis, and should be carefully noted.

Many practitioners have not had the opportunity of utilizing the cystoscope, and it is an instrument which requires continual practice and skill in its use. There is, however, a method which has in the past been of great service to the surgeon and to those suffering from stone, namely, the diagnosis of stone by means of the "sound." The sense of touch is still, to my mind, the "doyen of the senses" for the surgeon. The use of the sound, like the art of palpation, is, sad to relate, fast taking a secondary place in modern methods of diagnosis. It can safely be stated that with experience in its use, a fairly accurate idea can be formed regarding the size, consistency, and the number of stones present. The sense of impact on the different varieties of stone which one acquires with practice, and the feeling of pleasure it gives, is indeed well worth its retention in the armamentarium of the urologist. It fails in those cases in which stone forms in diverticulæ of the bladder, and when a stone lies in cases of enlarged prostate in the post prostatic pouch, and where you have changes in the bladder wall, such as new growths and various

complicated procedure which had been developed into a fine art by those experienced in this branch of surgery, and much has been written upon the methods of "searching for stone." All the difficulties and doubts have now been dispelled by the advent of the cystoscope and X-rays. To-day not only is it necessary to demonstrate the fact of stone, but also to note the presence or absence of enlargement of the prostate, growths, and diverticulæ of the bladder, also the state of the bladder wall itself, for on the information obtained will depend the method of treatment.

The history and symptoms alone are not sufficient to enable one to come to a definite decision between stone and many other conditions, such as infections of the bladder from tubercle, Bacillus coli, and the various infective organisms, new growths, diverticulæ, changes in the prostate and stricture of the urethra. urine should be examined in all cases. Acid urine is common to Bacillus coli, tubercle and gonococcal infections of the bladder. Luckily infection of the bladder by the latter organism is rare. Tuberculosis has to be excluded; this can be done by careful examination of the testes, and a rectal examination of the prostate and seminal vesicles and a bacteriological examination. of the urine. Should the urine in doubtful cases be negative, the inoculation of a guinea-pig with some of the centrifuged urine deposit may help in the diagnosis. Stricture is excluded by the passing of a metal bougie as large as the meatus will admit.

Having excluded stricture, the modern urologist will next utilize the cystoscope. In the hands of the expert this is a simple procedure. During a visit to the various clinics in Vienna a short time ago I found the cystoscope in general use in the out-patient departments of all the big hospitals. In the majority of cases it was passed even without local anæsthesia of the urethra, the urethra being anæsthetized only in nervous

#### STONE IN THE BLADDER

phosphatic stone. This form of infection can usually be dealt with by large doses of acid sodium phosphate to render the urine acid and the administration of hexamine, which only acts as a urinary disinfectant in an acid urine. In America injection of Lactic acid bacillus into the bladder has been used for this condition with good results.

General visceroptosis and intestinal stasis also plays a definite part in the formation of uric acid and uratic deposits. This should be treated on general principles.

The operative treatment is at the present day practically limited to two methods, both entirely different:—

(1) Lithalopaxy, or Lithotrity; (2) Lithotomy.

Lithalopaxy is the operation of choice for all cases of uncomplicated stones in the bladder. The contraindications are: (1) When the stone is extremely hard, as in most oxalate stones; (2) when the stone is encysted part or whole is in diverticula; (3) in cases of contracted bladder; (4) when a tight fibrous stricture of the urethra exists; (5) in cases of stone with enlarged prostate or tumour of the bladder; (6) when a stone has formed around a foreign body; (7) in children too small for lithalopaxy; (8) when a large stone is known to exist.

To learn lithotrity it is first of all essential to become more than usually adept in the passing of metal sounds and bougies into the bladder. The surgeon must have a delicate sense of touch, which is essential to those practising this method, which can by continual practice be brought to a high pitch of perfection. It is an operation which cannot be learnt from text-book descriptions or lectures on the subject. It can only be acquired by watching, observing, and assisting experts performing the operation, and, sad to relate, the opportunities of doing so in England outside the hospitals specially devoted to this method have vanished. There is no doubt that the frequency of stone in the

forms of ulceration, also when a small stone is covered with thick muco pus.

The last means at our disposal are the X-rays, and I purposely say "last," for if one relies on radiograms for the diagnosis, one will have good cause for regret. Small uric-acid stones frequently do not give shadows, and a negative X-ray should never be accepted as certain evidence of the absence of stone. The practice of taking X-ray photographs to verify the diagnosis is very sound, but only when a shadow is present should its veracity be trusted. Only a short while ago, in my own experience, a case of stone in the bladder was diagnosed as negative by X-rays, and later a fair-sized stone was removed.

#### TREATMENT.

This may be considered under two headings—prophylactic and operative. The prophylaxis involves a knowledge of the fundamental causes of stone. We are as yet ignorant of the conditions within the body which give rise to supersaturation, and consequently to crystalline deposits; we cannot, in our present stage of knowledge, prevent the formation of the nucleus. We must not forget the mechanical conditions which play an important part in the growth of stone. The two chief mechanical conditions are retention and infection. The most common causes of retention are stricture of the urethra, enlargement of the prostate, diverticula, lesions of the nervous system, and, in women, cystocele. When any of these conditions exist, stone in the bladder is more likely to occur, and their correction is desirable.

Infection is more liable to occur with retention, and all methods of treating infection will fail unless the retention is first relieved. The various cocci, especially the staphylococcus, have the power of splitting urea and so lead to alkaline decomposition of the urine which is an important factor in the formation of

# The Treatment of Compound Fractures.

By C. H. FAGGE, M.S., F.R.C.S. Surgeon to Guy's Hospital.

THEN in the early 'nineties the opinion was advanced that the treatment of fractures by open operation, hitherto confined to those of the patella and olecranon, should be extended to those of the long bones, there were many surgeons who were willing to accept these views only in so far as they applied to compound fractures. Now this is what was not advocated, the view being that such operative treatment was primarily intended for simple fractures, and should be confined to these, and this view has, to a large extent, held the field since that time. It is true that many of us from time to time have had recourse to open operation on compound fractures with very variable results, and it is unlikely that many will contradict the opinion that immediate plating of fractures during the war failed to give satisfactory results. the later surgery of war wounds gave us a valuable guide to the treatment of compound fractures in civil life by primary excision of the wound, so converting the fracture into a simple one. This is a fundamental advance in treatment. In my hospital practice the routine treatment of compound fractures is immediate excision of the wound, i.e. the skin and soft parts down to the fracture, with the most careful cleanliness. and the wound is immediately sutured. The whole treatment then exactly follows that of a simple fracture in the same situation.

The exceptions to this line of treatment are as follows: (1) In that variety in which the fracture has been

bladder has diminished in proportion to the population at a greater rate than almost any other condition during the last thirty years. The cause of this we cannot enter into in this article, but it is an extremely interesting topic for discussion.

India is undoubtedly the home of lithalopaxy, and those who wish to become experts in this method could not do better than go out there to acquire this special art. Lithalopaxy is one of the commonest operations that the surgeon has to do in the North of India. It is an operation which involves very little risk once one has gained sufficient experience to become confident and expert at it.

For those who have not had the opportunity or those who may have just a few cases to deal with during the course of a year, suprapubic lithotomy can be safely recommended as a simple and efficient procedure. The median and lateral lithotomies are rarely done nowadays, though I have done the median lithotomy on a few occasions in young boys with small stones, with very satisfactory results.

After having acquired the art of lithalopaxy in India, I found myself, during the last three years of the war, practising my profession amongst the civil population of Mesopotamia, and being without lithotrites I was compelled to carry out the suprapubic operation in practically all cases. During this period I operated on over 160 individuals by the suprapubic method, with a mortality of two cases, one of whom was suffering from chronic dysentery, and in his anxiety to be rid of his stone never reported the fact; the other case was that of an elderly Arab, who had a very large stone and a septic bladder. His death occurred suddenly a week later, from what I presumed was an embolism. In my opinion the suprapubic method is a simple and safe operation for those who are inexperienced in the art of lithalopaxy.

#### COMPOUND FRACTURES

in the wound, sinus formation, etc. In no case would such a plate be removed within less than three months of the operation, and after plating a fractured femur, at least six months should elapse before the plate is removed.

It will thus be seen that open operation on such a fracture is usually only the second of three operations; that the patient's stay in hospital will be necessarily prolonged, and, therefore, before doing so there must be ample grounds for advising such a line of treatment. In only one of my cases has the plate remained sterile and in position though infected at the time of operation. It is, of course, even now, after three or four years, too early to claim that this plate will not at some time or other give rise to trouble, as such cases flare up, and require incision and removal of the plate after a much longer interval.

Epitomizing what has already been written with regard to the operative treatment of compound fractures, it is my established practice that after excision of the wound the question of operation is decided upon within fourteen or at the most twenty-one days of the accident, on exactly the same grounds as if the fracture had been simple. This is the commonest and most important of all the indications for operative treatment of compound fractures, but there remain others. Experience has taught me that while primary plating is not generally advisable, cases occasionally occur, particularly in the lower third of the tibia, in which it is perfectly obvious at the time of excision of the wound that even a reasonable degree of alinement cannot be obtained, much less maintained, by ordinary splint treatment. For such cases the most valuable means of extension is by Sinclair's foot-piece and a Thomas's splint. Extension by the introduction of any traction appliance, such as a Finochietti's stirrup a Steinman's needle, is more dangerous than

caused by indirect violence, and is, therefore, oblique, the wound is produced by the pointed lower end of the upper fragment; it is often a mere puncture, and excision of such a wound may be considered unnecessary. In regard to this I should say that unless the patient's general condition or other injuries contra-indicate an anæsthetic, it is better to excise such wounds when in doubt than to omit to do so.

- (2) It should be done within as short a time of the accident as possible, and is of little use after 24 hours.
- (3) It is obviously impossible when large areas are denuded of skin, or the soft parts are badly lacerated.

If, after such a primary excision the wound breaks down, or if there is appreciable constitutional reaction, the sutures are removed, and the general lines of treatment of an infected wound carried out. When, as usually happens, the excised wound heals satisfactorily, attention may be concentrated upon the treatment of the fracture. The indications for operation will be exactly those which obtain in any simple fracture, i.e. inability to restore alinement or to maintain such apposition, even when once restored. It may be that operation is more often called for in such fractures than in simple cases, for possibly a week or more has been lost before deformity can be reduced, and, obviously, after this period of time reduction is neither so easy nor so complete, but on the other hand, I feel sure that those who have experience of operation on such cases will not be unduly sanguine about success of operative treatment of such fractures, for I have found, from bacteriological investigation of every case at the time of open operation, that all such wounds, even though they have apparently healed by primary union, are infected. It has, therefore, been my custom to warn patients that it is almost certain that the screws and plates will have to be removed at a later date. indications for such removal are inflammatory action

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of the lower limb it should not be carried out at any risk to the patient's life, or seriously enhance the risk of a higher amputation, it should always be borne in mind. In all such cases the wound has been left unsutured, and has gradually healed by granulation.

There are two stages in the healing of a compound fracture in which it has been, unfortunately, my experience to have to advise on treatment far too often. This particularly refers to cases in which I have been for the first time consulted at these periods, and it is mainly the object of this article in The Practitioner to stimulate the curiosity of those who carry on the treatment of compound fractures in bad positions, and to raise in their minds the question as to whether something cannot be done more easily and more profitably at an early date. Of the first the following will serve as an example:

In 1922 a lady of over 50 was seen five weeks after an accident in which a compound comminuted fracture of the left tibia and fibula were sustained. Operation was advised because of gross displacement and very weak side-to-side union. When this was undertaken some seven weeks after the accident, there was very little union between the two fragments of the tibia, which had only side-to-side approximation. This was not difficult to rectify, but as often happens with a small lower fragment, the marked atrophy of the compact layer rendered it so friable that an adequate number of screws to secure accurate alinement could not be inserted into it. From similar experience I have learnt that worse troubles are only encountered by continuing to endeavour to fix plates accurately to such fragments, so in this case only as many screws were inserted as would with some outside support from a plaster casing secure moderate fixation, and the wound was closed. The result has been better than was then anticipated, and the patient has now a useful limb, requiring only some support from a long-laced boot.

The second type of difficulty was met with in the following case:

A lady of 30, in June, 1922, met with a compound fracture of the left leg in a motor-cycle accident. When I saw her in March, 1923, there was mal-union with angulation inwards, and consequent valgus, with pain on walking. The operation, undertaken nine or ten months after the accident, was a difficult one. Cross-union between the tibia and fibula had to be divided. After chiselling apart the overlapping ends of the tibia and fibula it was no easy matter to get reasonable alinement of the freshened ends of the tibia. An attempt was made by removing only the thinnest possible layer from the surfaces to be

immediate plating. Sinclair's foot-piece is secured to the foot as soon as the patient is admitted, and when a few hours later the wound is excised, if it is found that traction on the foot does not restore a reasonable degree of alinement, immediate plating is seriously considered. In relation to this, as to all other fractures, of course, much will depend upon each individual surgeon's conception of a reasonable degree of alinement: I have little doubt that I am less easily satisfied than the majority of surgeons who treat fractures, for I have for years been impressed with the ill-effects of even a small angulation, particularly when the fracture is near a joint, on the subsequent mechanics of a long bone. Ashhurst 1 points out that this error of alinement is particularly important in the tibia, which is the only bone in the body bounded above and below by joints working on axes in the same plane-conditions which, in his opinion, tend to exaggerate the evil effects of errors of alinement. The indication for operation just spoken of is undoubtedly a very rare one. It is more common in my practice after excision of the wound to establish as good alinement as possible, and fix the limb in extension in a Thomas's splint, but not infrequently when, as is always done, the fracture is X-rayed in two planes within the next two or three days, it is not uncommon to find that either the restoration of alinement has not been as good as was thought, or if once secured, it has not been maintained by the extension. In such a case operative interference must be at once decided upon.

On two or three occasions a plating operation has been undertaken as an alternative to an amputation, either as an immediate proceeding or because some seven to twenty-one days after the accident the fragments were in a bad position. Some of these cases have been brilliantly successful, and though in the case

of the lower limb it should not be carried out at any risk to the patient's life, or seriously enhance the risk of a higher amputation, it should always be borne in mind. In all such cases the wound has been left unsutured, and has gradually healed by granulation.

There are two stages in the healing of a compound fracture in which it has been, unfortunately, my experience to have to advise on treatment far too often. This particularly refers to cases in which I have been for the first time consulted at these periods, and it is mainly the object of this article in The Practitioner to stimulate the curiosity of those who carry on the treatment of compound fractures in bad positions, and to raise in their minds the question as to whether something cannot be done more easily and more profitably at an early date. Of the first the following will serve as an example:

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approximated to reduce the shortening to less than half an inch. This was ultimately successful, but the difficulty of course could have been overcome by the removal of more bone.

One cannot, of course, criticize or draw deductions from the treatment of these two cases in the early stages, because one took no part in it, but from personal experience of a fairly large number of operations undertaken for either non-union, as in the first case, or for firm union in a bad position, as in the second, one had been compelled frequently to consider whether such difficulties could not have been eliminated by earlier operation. Operations undertaken in a number of cases during the different stages of healing of compound fractures, which it had not been possible by wound excision to convert into closed fractures, have convinced the writer that, provided no attempt is made in the first week-for in this period exacerbations of local sepsis are most probable—restoration of alinement by plating can be undertaken with a considerable measure of success during the second or third week without any risk from sepsis. At this time, absolute accuracy of restoration is still possible, for at this period the rugged irregularities of the fractured ends are not yet rounded off: again, atrophy of the compact layer has not had time to occur, nor have the surrounding soft parts become rigid by organization of blood clot.

In urging the consideration of earlier operation in some compound fractures, it is to be understood that this is advocated only with definite indications which are exceptional rather than ordinary, and even then only to be undertaken by those who have every facility for such work.

The essential in treatment of these cases is a careful, precise, routine excision and closure of the wound; if this were done whenever possible, most of the difficulties alluded to above would disappear.

Reference.

¹ Ashhurst: Surg., Gynæcol. and Obstet., xxxv, p. 662.

# The Middle Ear as a Source of Chronic Septic Absorption.

By E. WATSON-WILLIAMS, M.C., CH.M., F.R.C.S.

Clinical Lecturer in Laryngology and Otology, University of

Bristol, etc.

T appears now to be generally recognized that, in a large proportion of cases, the treatment of chronic disease must embrace an attack on the fons et origo mali-a focus of toxic absorption. Thus Sir William Willcox 1 gives a list of chronic diseases, and says: "In most of these conditions careful search will reveal some definite toxic factor." He further points out 2 that this search should be directed to "dental sepsis . . . tonsils, naso-pharvnx, accessory sinuses, colon washings . . . and urine." Dr. H. C. Nixon ³ enumerates as possible sites of septic absorption, "the teeth, tonsils, or nasal accessory sinuses . . . colon, gall-bladder . . . urogenital tracts." Nor is the effect of such poisoning shown only by bodily disease: evidence is increasingly accumulating that abnormal mental states may be traced to a similar cause. Dr. H. A. Cotton 4 points out that in over 1,600 cases of mental disorder, detoxication resulted in a recovery rate of 86 per cent., as compared with a former 38 per cent.: "The source of chronic sepsis has been determined . . . in the teeth, tonsils, gastro-intestinal tract and genito-urinary system. . . . It is useless to eliminate foci of infection, say, in the teeth or tonsils, leaving other foci in the body, and expect to get results." (My italics.)

The important truth embodied in the last sentence may appear self-evident, but is not the less deserving of emphasis. The lists of possible foci of septic absorption quoted show a remarkable measure of agreement among

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The important truth embodied in the last sentence may appear self-evident, but is not the less deserving of emphasis. The lists of possible foci of septic absorption quoted show a remarkable measure of agreement among

themselves, and with those given elsewhere. Yet the list does not include a chronic otorrhea. The middle ear tract is small, but the area from which absorption can take place is as large as that of a sphenoidal sinus, and larger than that usual in an apical dental abscess. In a certain proportion of cases absorption from this region will manifest itself in disease of other parts. Every aural surgeon could produce scores of cases where great improvement in the general health has followed operative treatment of this local infection: and certainly, when we are seeking a possible source of septic absorption, this region, very readily examined, should not be overlooked.

Approaching the matter from another aspect, we might inquire: "What are the indications for operative treatment in a case of chronic otorrhea?" In current works on the subject one finds a considerable list, but only of local conditions. Mere chronicity of the discharge is not now usually regarded as a reason for operating; and an otorrhea is not incompatible with fair hearing. Yet so long ago as 1909, West and Scott, in addition to the usual local conditions which may call for operation, indicated general toxemia, anemia, loss of general health, and depression.

Though in the type of case under consideration the risk attaching to a mastoid operation should be very small, less radical measures should always be given an adequate and careful trial. These patients are often reluctant to consent to operation: the inability to weigh facts, and especially to make any decision of importance, is, one might say, almost characteristic of chronic toxemia. But the point I wish to make is this: in every case of chronic otorrhea, when the question of operative treatment arises, we should have in mind, not only the local condition, but also the actual or possible damage to the general health.

It would serve no useful purpose to cite cases in which a mastoid operation, undertaken for ordinary

### THE MIDDLE EAR

local reasons, has resulted in a great improvement in general health. Sometimes, however, one is astonished to learn of some unsuspected trouble thus relieved.

Case 1. "Neurasthenia."—C. A. H., aged 34, a master tailor, came to me in 1923 for treatment of right otorrhea. The ear was deaf, and the man suffered from attacks of pain in the mastoid region. His general health appeared to be remarkably good. I carried out a radical mastoid operation. Four months later, he came to see me for routine examination. He then told me: "For four years I have suffered from attacks of not depression so much as apathy. I could not keep my mind on my work, or arrange my business; my memory was poor at times; and I did not feel that I had any initiative. My friends called me neurasthenic." (A fairly characteristic picture.) Since the operation, all this trouble had vanished.

The next three cases are selected from the class of case in which the local conditions were not such as called for operation; operation was undertaken for the sake of the general health.

Case 2. "Loss of General Health."-A. J. B., aged 41, a chef, came to me in 1922 for deafness and otorrhœa; both ears were affected and had been for years, but the right did not give much trouble. The left ear was very deaf; there was a constant mucoid discharge, never profuse, but occasionally purulent, and periodical slight aching deep in the bone behind the ear. Ordinary measures dried up the right ear, with very slight permanent deafness; the left ear did not improve, in spite of months of care. He had been earlier compelled to give up his occupation, as he was always feeling too ill for it, and although he went through a course of training as a French polisher, he was never fit enough to take this up. The discharge and occasional pain in the ear were not such that I should ordinarily have advised operation; but he was a very miserable, depressed, undernourished, anæmic creature, and I suggested that we might see what an operation would do for him. He accepted. and in the autumn of 1922 I carried out a radical mastoid operation, with skin graft. The immediate effect was almost startling-within a fortnight he had become a bright, cheery man; on convalescence he found work, and was head chef at a large sea-side hotel for two years. I have seen him on several occasions since; at first, because he did not properly manage the cavity, recently for disease in the other ear. He has worked hard the whole time, is bright and cheerful, and gets no trouble from the left ear, which is as deaf as before.

Case 3. "Myalgia."—J. L., a man aged 52, but looking older, came to me early in 1924 complaining of deafness. Both ears had run "on and off" for many years, probably constantly. The discharge was never profuse, but was somewhat offensive, though he had not observed this. There was no pain in the mastoid region, but on the right side, slight tenderness on firm percussion. He suffered occasionally from headaches; but almost more trouble than the

themselves, and with those given elsewhere. Yet the list does not include a chronic otorrhea. The middle ear tract is small, but the area from which absorption can take place is as large as that of a sphenoidal sinus, and larger than that usual in an apical dental abscess. In a certain proportion of cases absorption from this region will manifest itself in disease of other parts. Every aural surgeon could produce scores of cases where great improvement in the general health has followed operative treatment of this local infection: and certainly, when we are seeking a possible source of septic absorption, this region, very readily examined, should not be overlooked.

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### THE MIDDLE EAR

question of operation had been brought up, but on the advice of the physician was deferred; an anæsthetic was to be avoided. When I saw him, the local condition was much improved. Under treatment, the daily urine had gone up from six ounces to forty, but was still loaded with albumen. There was slight pain and more definite tenderness in the mastoid region, but no ædema. Temperature It was still thought that a general anæsthetic 99.0 degrees. would entail much risk. Matters continued unchanged until July 4. The temperature was then again running up, but without any further local signs. The urine was bright red with blood, but good in quantity. Another period of relative quiescence followed, the pain and tenderness disappearing. By July 9 it was clear that he was losing ground. There was some bulging of the posterior meatal wall, but no post-aural edema. The urine was full of pus and casts, and grew staphylococci; cedema of the legs and eyelids appeared, and the man was feeling really ill. There had been some headache for two or three days, but not more than the nephritis. explained; this became much worse. In view of the continued reluctance to allow a general anæsthetic, on July 11 I infiltrated the soft parts with novocaine, and performed a radical mastoid operation. For the actual opening of the mastoid, gas was given; the bone was extensively diseased. From the morning of the next day, improvement began. Malaise disappeared at once. Fever cleared up completely by the second day. Pus in the urine was a up completely by the second day. Pus in the urine was a "trace" only by July 14, and had disappeared by the 21st. Hæmaturia cleared up by July 29, although traces occurred up to August 8. The albumen persisted for several weeks, but this, too, eventually disappeared. The ear healed without giving any anxiety. And, what is interesting, the man said in October that he was feeling better than he had done for months before the operation. thanks are due to Mr. J. P. I. Harty, to whose ward the man had been admitted, for permission to use the notes.)

### SUMMARY.

- 1. In every case of chronic disease in which it is suspected that septic absorption from some local source is a factor, the ears should be examined.
- 2. In every case of chronic otorrhea, when the matter of operative treatment is under consideration, regard should be had, not only to the local conditions, but also to the actual or possible results on the general health of septic absorption.

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¹ Willcox, "The Toxic Factor in Disease," The Practitioner, May, 1925, p. 326. ² Ibid. p. 331. ³ Nixon, "The Heart in Chronic Toxemia," Brit. Med. Jour., April 11, 1925, p. 692. ⁴ Cotton, "Effect of Chronic Sepsis on the Central Nervous System," The Practitioner, May, 1925, p. 335. ⁵ West and Scott, "The Operations of Aural Surgery."

deafness was "rheumatism in the back," which had crippled him for years. The hearing on the left side was conversational voice at six inches; on the right, only loud noises were heard; in short, there was very severe deafness. I had to tell him that I could not offer a good prospect of improving the hearing, but advised operation in the hope of general improvement. I attacked the right ear first, as being the more deaf, and performed a radical mastoid operation. The bone was extensively diseased, a considerable area of dura mater having to be exposed. Three months later, although the deafness for which he came to me was unrelieved, he thanked me with tears for the improvement in his general health; he had had no "rheumatism" since he left his bed, and said he felt "as fit and well as before the war."

"Mental Changes."-A. R. G., a man aged 44, came to me early in 1924 for discharge from the right ear of many years standing. The ear was very deaf, and a slight mucoid discharge was There was no pain, no headache; the general health appeared quite good; the prognosis as regards hearing was poor; and it seemed a typical case for local palliative treatment. I saw him again from time to time, and learnt that drops kept the discharge within limits. In June, however, he came to me in great distress. He thought he was going out of his mind. He had taken to sleepwalking; several times he had gone downstairs in his sleep, and lit fires, and finally he had wandered into the room of a servant, and awakened himself while getting into her bed. Unknown to him, his wife came to see me, and confirmed his story of somnambulism, which was a quite recent phenomenon, and said further that he was getting "dazed" fits, in which he seemed quite "lost." In short, the question appeared imminent whether he was not a "proper person to be detained under care and treatment." As soon as arrangements could be made, I operated on his ear. The mental state became again normal, and in January of this year he had been back at work for some months, quite well. I felt reasonably certain that the mental change had been due to absorption from the ear.

Case 5. "Epilepsy."—H. G. had had a running right ear for many years, with periodical post-aural pain. He also suffered from fits, described by his doctor as definitely epileptic; and in March of this year he was getting one or two fits every week. I therefore performed a radical mastoid operation. The ear has healed; he has had no more fits. It is as yet too early to give a prognosis, but the progress is encouraging.

The connection between the aural condition and some other trouble is not at times too clear. In the following case, in which an acute exacerbation had supervened on a chronic mastoid disease, the connection was manifest. The operation was undertaken for relief of the nephritis.

Case 6. "Acute Nephritis."—I was called on June 28, 1924, to see P. C., a man aged 24. For several years he had had running ears, but had not worried about it. Six days earlier he had had pain in the left ear, and some fever. He had marked albuminuria; the

needed to control the symptoms.

The internal secretion of the pancreas performs a double function in carbohydrate metabolism, controlling the laying down of glycogen in the tissues and promoting the utilization of sugar. If, as is apparently the case in some forms of diabetes, and par-ticularly those occurring in elderly people, the power to store glycogen is deficient, while sugar utilization is normally or nearly normally carried out, the administration of insulin in sufficient amount to overcome the former difficulty will bring about an excessive combustion of sugar, with the result that the sugar content of the blood will rapidly sink and a hypoglycæmia will result. In such cases it is difficult to arrange the diet and dosage of insulin in such a way that glycosuria is prevented without running the risk of hypoglycæmia, and better results are usually obtained by careful dieting alone than with the help of insulin. Very often the problem is complicated by there being what may be termed a spurious hyperglycæmia, that is to say, an abnormally high blood sugar due to an increase in the threshold of the kidneys for sugar, so that determinations of the sugar content of the blood do not give a correct indication of the true state of the patient's carbohydrate metabolism. A very small dose of insulin will then result in a rapid and pronounced fall in the blood sugar. It is, consequently, a wise working rule to proceed cautiously with the administration of insulin in all cases where there is even a faint trace of albumin in the urine, or analysis of the fasting blood shows evidence of a retention of nitrogenous waste products.

Defective glycogen storage may arise from pathological changes in the storing tissues themselves, or result from the excessive activity of influences opposed in their normal action or chemical constitution to the internal secretion of the pancreas. In either case insulin will help to overcome the difficulty, but the dose needed

# The Dosage of Insulin.

By P. J. CAMMIDGE, M.D. London, W.

BSERVATIONS upon departeratized dogs have shown that when insulin is given with sugar to such animals there is a definite ratio between the quantity of sugar utilized and the amount of insulin administered. If, therefore, human diabetes is dependent on deficiency of the internal secretion of the pancreas, we should expect a similar ratio to exist, and it should be a comparatively simple matter to determine the correct dosage for any desired diet after the patient's tolerance for carbohydrate had been ascertained. Clinical experience has proved that in some instances this expectation is fulfilled, but such cases are comparatively rare, and in the majority of diabetics it is evident that other factors than the carbohydrate content of the diet must be taken into account if the insulin treatment is to be employed to the best advantage.

A fundamental difference between a depancreatized dog and a human diabetic is that in the one we are dealing with a healthy organism, while in the other any pancreatic deficiency is usually only part, and may be not the primary or essential part, of the condition. normalities in the functions of the liver, excessive or defective action of the thyroid, parathyroids, pituitary, or suprarenals, pathological changes in the kidneys, and disturbances in external secretion of the pancreas, very often associated with faults of digestion and absorption in the stomach and intestine, enter into the pathology of most cases of diabetes, and must be taken into The existence of foci of account in the treatment. septic absorption, or their development in the course of the disease, also influences the food tolerance of the patient, and may materially affect the dosage of insulin

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will not be the same, since in the one the glycogenetic effect of the insulin administered will be at once fully exerted, whereas in the other part of it will be expended in neutralizing the opposing influence or be inactivated by the chemical changes which occur when it enters the circulation. One of the most important substances having an opposite influence to insulin on glycogen formation is the internal secretion of the suprarenals. Observations upon animals and test-tube experiments have shown that adrenaline increases the sugar content of the blood by promoting the breaking-down of glycogen, and that so long as there is a store of glycogen in the tissues the hypoglycæmic effect of insulin can be counteracted by injecting adrenaline, a fact made use of in treating the effects of an overdose of insulin. It is at present difficult to be sure that hyperadrenalism is an active factor in producing the hyperglycæmia of diabetes, but it is probably contributory in some cases, and it would seem that part of the insulin administered is then expended in correcting this anomaly, so that larger doses than might be expected have to be given to produce a satisfactory result.

We are on more certain grounds as regards the thyroid, and there can be no doubt that in cases of hyperglycæmia with hyperthyroidism comparatively large doses of insulin may be given with little or no effect upon the sugar content of the blood. Experiment has failed to reveal any direct antagonism, either in function or chemical action, between insulin and the thyroid secretion, and the explanation of the effect of hyperthyroidism is apparently that the thyroid influences carbohydrate metabolism indirectly through the power it possesses of activating adrenaline. Langfeldt has shown that added thyroid has no influence upon the activity of the diastatic ferment of the liver, but a very minute proportion materially enhances the influence of adrenaline upon glycogenolysis; results which Mr.

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Howard and I have confirmed. We have also proved that more insulin is needed to neutralize the effect of adrenaline and thyroid acting together than is required to control the same amount of adrenaline alone. The analyses we have made in many cases of diabetes have shown that hyperthyroidism is not at all infrequent, even where the clinical symptoms of exophthalmic goitre are absent, and that in such cases the response to insulin is apt to be disappointing at first. Moderate doses, which may be insufficient to prevent glycosuria, and careful regulation of the diet, especially as regards its protein content, eventually bring about a gradual improvement, however, and give more lasting results than large doses of insulin, and an improperly balanced diet.

Experiment has demonstrated that insulin is inactivated by various substances produced within the body, or given medicinally, and there are others which increase its activity. Among the former are trypsin, pituitrin, morphine, quinine, caffeine, atropine, and strychnine, while the most important of the latter is parathyroid. Most of the members of the first group appear to combine with insulin, under appropriate conditions, to form loose chemical compounds which do not possess the characteristic properties of insulin, but from which physiologically active insulin can be recovered again by altering the conditions. Trypsin, for example, combines with insulin and renders it physiologically inert, but Epstein and Rosenthal² have shown that the effect is not one of cleavage and destruction, as had been thought, since the combination can be dissociated in vitro and the insulin recovered by altering the conditions. Further, they have found that trypsin similarly inactivates insulin in the body, the degree and duration of the effect depending upon the dose and order in which the two substances are injected; thus the most marked inactivation was obtained when they were given in close chronological order, with the trypsin

first; if the injections were given in the reverse order, or at too long intervals, the inactivation was incomplete, as was manifested by a delay in the appearance of the physiological effects of insulin. These observations are of practical, as well as of theoretical interest, since they not only help to explain the rise in the sugar content of the blood, which occurs normally after a meal, while trypsin is being poured into the intestine and is probably absorbed into the portal circulation, but they also help to account for the unexpectedly large doses of insulin which are needed in some cases of diabetes to prevent an abnormal increase in the blood sugar after food, and also show why the full physiological effect of an injection should sometimes be delayed for six or eight hours instead of the usual three or thereabouts.

Pituitrin, also, inactivates insulin by forming with it a chemical combination, and advantage is taken of this property clinically to counteract the effects of an overdose of insulin, but it is also of importance in relation to the dosage, for if an excessive amount of pituitrin is being formed naturally, a larger dose of insulin will obviously be required to produce a given physiological effect, whereas with a defective formation of its internal secretion by the pituitary a relatively small dose of insulin will be needed. Abnormalities in the activity of the pituitary are more common in diabetes than is generally imagined, and account for symptoms which are not easy to explain at first sight, as well as for some of the difficulties experienced in adjusting the dosage of insulin. One peculiarity which is a common source of error is the variation in the volume of the blood that occurs after a meal, hyperpituitarism being associated with dilution and dyspituitarism with concentration, so that in either case the percentage of sugar actually found is not an index of the true state of the patient's Many cases of simple hyperpituitarmetabolism. ism are diagnosed as "renal glycosuria," while the

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fictitious increase in the blood sugar taking place after feeding leads to unnecessarily large doses of insulin being given in cases where there is a deficiency of the pituitary. It seems probable that the inactivating effect of pituitrin upon insulin is a provision of Nature by which the deposition of glycogen in the nervous system, enclosed in its rigid envelope, is prevented, and explains why the brain should be connected with the main glycogen store of the body in the liver by a special nervous path. Mr. Howard and I have found that, when fatal doses of insulin are given to rabbits, and the inactivating effect of the pituitary is presumably overcome, glycogen is deposited in the brain in relatively large amounts.

This observation has a practical bearing, for it shows that massive injections of insulin may hamper the functions of the central nervous system, and suggests that excessive doses long continued may tend to exhaust the pituitary, thus leading to polyuria. Clinical experience tends to confirm this conclusion, since it is not at all uncommon for the glycosuria of diabetes to disappear under treatment with insulin, although the excessive output of urine is not affected, maybe increased.

At the present time very little is known regarding the exact influence of drugs, such as morphine, quinine, atropine, etc., upon the dosage of insulin, but, as they apparently have the power of combining with and inactivating it, they should be used with caution in cases where insulin is being administered.

In 1923 Winter and Smith³ announced that the addition of parathyroid to insulin greatly increases the effect of the latter upon the sugar content of the blood in rabbits. The work Mr. Howard and I have done has confirmed their results, and shown that parathyroid functions as an activator to insulin in much the same way as the internal secretion of the thyroid activates adrenaline. The mechanism of the interaction is obscure, and

is being investigated, but it is quite clear that the full physiological effects of insulin can only be exerted at the normal reaction of the blood in the presence of parathyroid. If, therefore, the parathyroids are acting imperfectly, the control of the internal secretion of the pancreas over carbohydrate metabolism is likely to be incomplete, and insulin injected into the circulation will be incapable of exerting its full effect. would be outside the scope of this article to discuss this subject in all its bearings; it is sufficient to point out that the lowered percentage of calcium in the blood known to be associated with hypofunction of the parathyroids is particularly common where there is chronic absorption of toxins from the alimentary tract, or from a septic focus, and that the occurrence of such a condition in diabetes diminishes the sugar tolerance and calls for an increase in the dose of insulin so long as the toxemia persists. The removal of all foci of toxic absorption is, consequently, an essential adjuvant in the treatment of diabetes with insulin, and has a material influence upon the dose required.

It cannot be too often or too emphatically stated that the discovery of insulin has not lessened the need for correct dieting; it has rather emphasized But it must be remembered that it is the food absorbed, not the food eaten, which has to be taken into account. The occurrence of digestive disturbances, and particularly of diarrhœa, in a diabetic is always a serious complication, but especially so when insulin is being given, for the dose which is correct for a given diet when the food is being normally absorbed will be excessive when it is being passed through the bowel in an undigested condition. Unless the diet can be altered so that better absorption can be ensured, the dose of insulin must be reduced until the condition has been controlled, and a normal absorption has been re-established.

### THE DOSAGE OF INSULIN

The composition of the diet is frequently almost of as much importance as the amount of food taken, an incorrectly arranged diet calling for larger doses of insulin, often with less satisfactory results, than a diet of similar caloric value suited to the metabolic needs and capabilities of the patient in all respects. It is one of my commonest experiences to have patients sent to me with the statement that, although as much as 150 or even 200 units of insulin are being given daily, sugar, and sometimes acetone, bodies are being excreted in the urine, and then to find that by suitable adjustment of the diet the condition can be completely controlled with doses of ten or twelve units twice a day.

It is always a serious responsibility to commence the treatment of diabetes with insulin, and every possible means should be taken to avoid the wearisome inconvenience to the patient it entails, but in some instances it is the lesser of two evils, and it may be imperative to avoid an imminent catastrophe. If the best results are to be obtained from the treatment, once it has been decided on, the dose is a matter of great importance, for too little will not stay the progress of the disease, whereas too much may have disastrous consequences. Many factors enter into the determination of the optimum dose, as we have seen, and since they are never exactly the same in any two instances, each case is a law unto itself, but if the conditions existing are accurately ascertained for each patient, it is possible to secure very satisfactory results with comparatively small doses, even in seemingly severe cases, and, further, a reduction is often possible, as influences interfering with the full physiological effect of the insulin administered are eliminated or minimized by suitable diet and treatment.

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# Anæsthetics for the General Practitioner.

By CHARLES T. W. HIRSCH, M.R.C.S., L.R.C.P.

Anæsthetist to the London Temperance, Samaritan, and Royal Ear

Hospitals, etc.

It is said that a motorist has three speeds, namely, that which he tells the police he is driving at, the one he mentions to his friends, and that which he really drives at. So with anæsthetics there is the method the surgeon remarks on, the one the patient comments about on the following day, and, lastly, the one that the anæsthetist himself imagines he is employing. These three do not always coincide. The following are the chief safeguards for the patient:—

(1) Proper preparation of the patient, including preliminary hypodermic injections of atropine. The use of scopolamin and morphia is debatable. (2) Suitable selection of anæsthetic and method. (3) A gradual induction. (4) The maintenance of a patent airway. (5) Uniformity of anæsthetic dose and anæsthesia.

### THE PREPARATION OF THE PATIENT.

Where possible the bowels should be cleared out by a laxative given on the second night before the anæsthetic, followed by an enema on the day of the operation. There is no need to arouse the patient for this at an early hour, but it should be given so that its action has concluded some time prior to the operation. Only light nutritious foods should be eaten for a couple of days before. Unless the patient is in a very feeble state of health the last meal should be taken not later than five or six hours before the operation. The meal should consist only of soup free from fat,

broth, or meat jelly. Milk is undesirable.

The best preliminary hypodermic is atropine, onehundredth of a grain being given about twenty minutes before the operation. A careful physical examination, in which an estimation is made of the patient as a surgical risk, is always worth doing. The presence of sepsis in the mouth, nose, throat, and nasal accessory sinuses may be a cause of subsequent pulmonary complication. In operations of election, such as herniotomy, such a sequence is inexcusable, and could have been prevented by adequate preliminary physical examination. Emergency operations, of course, may have to be done on a partially full stomach, which adds to the possibility of insufflation pneumonia. For this reason the operation table should have some device to permit of lowering its head. Numerous other conditions which have a vital bearing on the outcome of the anæsthetic, such as possible status lymphaticus, hypertension, heart and pulmonary conditions, can be detected and properly met by a careful preliminary A urinalysis may disclose diabetes or examination. nephritis, either of which should indicate nitrous oxide oxygen in lieu of another anæsthetic in order to get the most favourable post-operative results.

## THE SELECTION OF THE ANÆSTHETIC AND THE METHOD OF CHOICE.

I think that it is admitted that anæsthesia has played a very important part in the development of surgery, and that with the greater experience obtained in surgical treatment anæsthesia has passed from the stage of empiricism to that of a refined art. Still it must be granted that the methods of inducing sleep have limitations and drawbacks. There are two extreme categories of patients, the young and strong, and the old, suffering also, perhaps, from serious organic lesions. Between these good and bad risks are various grades, which may overlap one another and render the

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Hospitals, etc.

It is said that a motorist has three speeds, namely, that which he tells the police he is driving at, the one he mentions to his friends, and that which he really drives at. So with anæsthetics there is the method the surgeon remarks on, the one the patient comments about on the following day, and, lastly, the one that the anæsthetist himself imagines he is employing. These three do not always coincide. The following are the chief safeguards for the patient:—

(1) Proper preparation of the patient, including preliminary hypodermic injections of atropine. The use of scopolamin and morphia is debatable. (2) Suitable selection of anæsthetic and method. (3) A gradual induction. (4) The maintenance of a patent airway. (5) Uniformity of anæsthetic dose and anæsthesia.

### THE PREPARATION OF THE PATIENT.

Where possible the bowels should be cleared out by a laxative given on the second night before the anæsthetic, followed by an enema on the day of the operation. There is no need to arouse the patient for this at an early hour, but it should be given so that its action has concluded some time prior to the operation. Only light nutritious foods should be eaten for a couple of days before. Unless the patient is in a very feeble state of health the last meal should be taken not later than five or six hours before the operation. The meal should consist only of soup free from fat,

broth, or meat jelly. Milk is undesirable.

The best preliminary hypodermic is atropine, onehundredth of a grain being given about twenty minutes before the operation. A careful physical examination, in which an estimation is made of the patient as a surgical risk, is always worth doing. The presence of sepsis in the mouth, nose, throat, and nasal accessory sinuses may be a cause of subsequent pulmonary complication. In operations of election, such as herniotomy, such a sequence is inexcusable, and could have been prevented by adequate preliminary physical examination. Emergency operations, of course, may have to be done on a partially full stomach, which adds to the possibility of insufflation pneumonia. For this reason the operation table should have some device to permit of lowering its head. Numerous other conditions which have a vital bearing on the outcome of the anæsthetic, such as possible status lymphaticus, hypertension, heart and pulmonary conditions, can be detected and properly met by a careful preliminary examination. A urinalysis may disclose diabetes or nephritis, either of which should indicate nitrous oxide oxygen in lieu of another anæsthetic in order to get the most favourable post-operative results.

## THE SELECTION OF THE ANÆSTHETIC AND THE METHOD OF CHOICE.

I think that it is admitted that anæsthesia has played a very important part in the development of surgery, and that with the greater experience obtained in surgical treatment anæsthesia has passed from the stage of empiricism to that of a refined art. Still it must be granted that the methods of inducing sleep have limitations and drawbacks. There are two extreme categories of patients, the young and strong, and the old, suffering also, perhaps, from serious organic lesions. Between these good and bad risks are various grades, which may overlap one another and render the

estimation of operative risk difficult. For these reasons we should all be efficient in every anæsthetic agent and method, and not become accustomed to employ only one, or have special methods of technique. All efforts are made by our medical and surgical colleagues to arrive at a correct diagnosis in each case, and we must follow their example and use discrimination in our anæsthetic and method. This is an important factor in the patient's Shock may be due to many causes: fright, trauma, hæmorrhage, sepsis, and the anæsthetic. duty is to minimize or eradicate the last named. As a sequence of the disease and the procedure to cure the same by operation, the vitality may be so lowered that the patient may become an ideal candidate for shock, and the anæsthetic, if not suitable, may so aggravate matters that the condition may prove dangerous to life.

The chief anæsthetics employed are nitrous oxideoxygen, ethylene-oxygen, ethanesal, ether-oxygen, chloroform, and spinal or regional anæsthesia, combined, if needful, with gas-oxygen. If the last-named be placed third in the list I think they will then be in the correct order as regards degree of safety. Spinal anæsthesia is of little use for operations above the navel, the danger of the stovaine in the tilting of the patient to anæsthetize the cord higher up being too great; the drug might pass up to the respiratory centres and so cause death. In cases of low blood-pressure, such as occur after hæmorrhage, it may, by a further lowering of the blood-pressure, be a source of danger. Stovaine, given with caffeine, is probably the best drug to employ. The recently introduced very fine French needles are better than the old-fashioned ones. These needles are not as easy to introduce, but it is claimed that their use eliminates the factor of postspinal anæsthesia headache, by their size producing less injury to the cord-covering. As to regional anæsthesia, its advantage is that it produces analgesia

### ANÆSTHETICS

of the field of operation. The difficulty in choosing a method of anæsthesia lies not in the selection only of the drug least likely to influence the post-operative course of the disease, but likewise in adopting one which will afford the surgeon the best operative facilities. If one method does not meet all the requirements, the judicious combination of that method with other means may solve the difficulty, our whole purpose being to reduce anæsthetic risks so that the patient may enjoy the full benefit of the surgeon's skill with a minimum of anæsthetic or post-anæsthetic dangers.

In regional infiltration there is the danger of the toxicity of the drugs used, though novocain and adrenalin are, comparatively speaking, almost free from that. Another disadvantage is the fact of delay, each layer of tissue having to be injected. The large amount of the fluid that has to be injected may cause an extensive infiltration of the tissues and lead to subsequent sloughing, but with judgment and aseptic precautions this can largely be eliminated. Still, if the injection is along the lines of the operation incision it may delay healing. Another method is to block the splanchnics by injecting from behind, or from the front after opening the abdomen. Nitrous oxide-oxygen has the great advantage that, with it, patients are seldom sick afterwards, and have less shock exhaustion and general distress. It may not, however, give the surgeon, for high abdominal operations, all the relaxation he desires. If it is not combined with spinal anæsthesia, occasional bubbling of the gas-oxygen through ether or ethanesal should be sufficient to obtain the desired degree of relaxation.

Ethylene-oxygen is of recent introduction, and its production has been delayed on account of the difficulty in liquefying the ethylene gas. I tried it personally two years ago, but with rather disastrous effects. It does produce, if given with oxygen, a quiet anæsthesia, and I believe that it gives a better relaxation. Un-

fortunately it has an unpleasant smell. It is also highly explosive, so that it cannot be used in the same room as a sterilizer, or where there is a naked flame.

Ether is not pleasant to inhale, but in sequence to ethyl-chloride or gas it can be easily administered. It is comparatively fool-proof. It is still often given by the closed method in either an Ormsby or Clover inhaler. Personally I prefer the perhalation or so-called open method. In this method a piece of gamgee or spongiopiline is fitted to the face with a hole for the mouth and nose; over this a mask of some twelve layers of gauze is placed, and over all a piece of towel with a central hole; the ether is dropped steadily on the gauze through the hole, and the air, being restricted. induction is easily obtained, and any depth of anæsthesia maintained. Induction can be more quickly brought about by starting with ethyl-chloride. I think the administration by warmed vapour preferable, such as is obtained with a Shipway or a Hirsch apparatus.

Ethanesal is said by many to cause less postanæsthetic vomiting as well as to be more pleasant to take. My experiences certainly favour this conclusion. Induction with ethanesal is quite easy, but greater air restriction is desirable. The employment of a layer of protective with a small centre hole on top of the gauze on the mask is a good method, or it can be given with the Hirsch percentage chloroform inhaler, anæsthesia being afterwards maintained by bubbling oxygen either through or over ethanesal. Chloroform, feared by so many and credited with so many victims, is, I venture to suggest, an excellent anæsthetic. I admit many deem it the most dangerous of all anæsthetics, but I question this, although in septic cases the possibility of postchloroform acidosis must be admitted. The personal factor applies, and with care and attention I consider it safe so far as administration is concerned. Most anæsthetists, however, think otherwise. The advantage of the

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mask and drop-bottle, and the ease of so giving it, make many favour this method. The disadvantages are that irregularities in vapour percentage may occur, except with skilled administrators, which calls for the employment of percentage inhalers, although I admit that complicated types of apparatus are not advisable as a rule. In view of the general dread of chloroform, and of the fatalities reported, the fact that such an appliance is "fool-proof" appeals to many. The Vernon Harcourt is the best known, though induction with it is sometimes tedious. One which I employ is made on the principle of the old surface carburetter, which is simple, free from valves, and efficacious. The percentages have been verified on Waller's chloroform balance. It is useful in midwifery cases, as it can be suspended from the bed and the face-piece joined to it by a wide-bore rubber tube. With it the patient can hold the face-piece, applying it only during a labour pain. The indicator can be so adjusted to obviate any possibility of an overdose, to deliver, say, 11 per cent. It avoids the bellows of a Junker inhaler, and leaves the practitioner free to attend to other duties.

#### A GRADUAL INDUCTION.

This is certainly essential for a satisfactory anæsthetic. With the percentage chloroform inhaler already mentioned it is easily obtained. The same inhaler can likewise be utilized for ether or ethanesal, if needful also dropping ether on gauze over the air-pipe to increase the percentage during induction. The anæsthesia can, of course, be maintained with this inhaler, although, as a rule, after induction I bubble oxygen through ethanesal. With the apparatus already mentioned any percentage can be administered and maintained.

THE MAINTENANCE OF A PATENT AIRWAY.

Most of the worries of an anæsthetist are the result of mechanical obstruction to the respiratory passage. Blocking through mucus is generally eliminated by the

preliminary hypodermic injection of atropine. The falling back of the tongue can be prevented by pulling the jaw forward, or by the introduction of an airway soon as the patient is sufficiently under permit of so doing. The original airway was brought out by the late Sir Frederick Hewitt; since then it has been modified. A useful one is Barth's, made with a flat dental metal end and a dermatine mouth portion. The dental part has a tube projecting, to which the anæsthetic conveying tube can be attached. The whole contrivance can be sterilized by boiling. It is a good plan to start the anæsthetic with some form of prop in the mouth; this allows of the introduction of the airway after the patient is under, and avoids the use of a gag. As a free airway is so essential it can be further aided by introducing into each nostril a piece of quarter-inch rubber tube, passing it in so as to hang just behind the soft palate. They must, of course, be taken out during the operation for adenoids.

### UNIFORMITY OF ANÆSTHETIC DOSE AND OF ANÆSTHESIA.

When once the patient is under, the dose should be regulated so as to maintain a uniform degree of anæsthesia. For ordinary cases 11 or even 1 per cent. of chloroform and 10 to 15 per cent. of ether or ethanesal is ample. When there is likely to be traction on the intestines, gall-bladder, or uterus, or orthopædic wrenchings are being done, deep anæsthesia is essential to obviate possible reflex cardiac inhibition. For these the anæsthetic must be pushed, the pulse and, what is more important, the respiration being watched all the time. For cerebellar tumours it is advisable frequently to estimate the blood-pressure, a fall in blood-pressure and a rising pulse indicating cessation of the operation if a catastrophe is to be avoided. A regularity of the depth of anæsthesia and an absence of all cyanosis are both essential if post-anæsthetic vomiting is to be eliminated.

### Colon Bacillus Infections.

BY A. BASIL ROOKE, F.R.C.S.

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Y attention was first drawn to the prevalence of Bacillus coli infections seventeen years ago, when it was found that a considerable percentage of the cases in the children's ward of the hospital at which I was then working, were passing B. coli in their urine. Ever since I have been more or less interested in the condition. During the past twelve months this interest has been stimulated by a much more intimate association with the disease and by the consequent closer observation of a number of cases. I believe that, within the next ten years, the condition will be recognized as the cause of as much disability as either tubercle or syphilis, and that, in our differential diagnosis, we shall give it an equal place with these diseases.

Four facts have particularly impressed me, namely:
(1) The frequency of the condition; (2) the diversity
of its symptoms; (3) its tendency to become chronic;
(4) my inability to find in the literature any working
classification of its manifestations.

I suggest the following classification, which is based principally on my own clinical observations.

The infection is caused by the *B. coli communis*, usually in association with other organisms. The onset of infection is characterized by diarrhæa and vomiting, lumbar pain, frequency of micturition, toxæmia of varying intensity, and fever of the intermittent type. Secondary infective processes are common.

As the disease can only be diagnosed with certainty by the presence of the colon bacillus in the blood,

urine, or in pus, and as the organism was not discovered until 1885, a year after the isolation of B. typhosus, the earlier history of the disease is uncertain. It is, however, probable that many of the popular diseases of past centuries, such as gout and stone in the kidney and bladder, had their origin in this infection. That the frequent occurrence of the condition has only recently been recognized is shown by the scant courtesy accorded to the B. coli in the 1918 edition of "The Nomenclature of Diseases," in which it is stated to be "an occasional cause of local inflammation and of septicæmia."

The most common season for infection to occur is from November to March; there is a secondary period in July and August. Infection usually takes place before the tenth year, or between the ages of twentyfive and forty. Females are more often attacked than males, and it is more usual in dark persons than in fair. It is not uncommon to meet with several cases in one family. This may, however, be due to environment rather than to heredity. The disease is more frequently observed among the educated classes; it is unusual for manual workers to be attacked during the active years of life. Bottle-fed babies are more susceptible than breast-fed infants. Other infections and debilitating conditions of any kind predispose to an attack. Dietetic indiscretions, alcoholism, and drugtaking are notable factors. One attack greatly increases susceptibility, but it is questionable whether recurrent attacks are fresh infections, or recrudescences of a dormant condition. Cold and over-exertion commonly precede an attack; sea-bathing probably accounts for the summer incidence wave.

### MODE OF INFECTION.

Infection may take place in any of the following ways:—
(1) Foreign B. coli entering by the mouth, as, for 206

example, in water, milk, dust, etc., and infecting its mucous membrane; (2) urethral infection; (3) skin infection; (4) auto-inoculation from the intestine. In the present state of our knowledge it is difficult to say which are the commoner modes of infection, but it is probable that the normal resistance, at any rate to our own strain of B. coli, must in some way be upset before infection can take place, since it is found that, in healthy animals, experimentally produced mechanical injuries to the intestinal mucous membrane do not cause a general infection. How this sensitization takes place, and what it is that increases the virulence of the B. coli, is still uncertain. There seems but little doubt that, whatever the source of infection, it is, in the majority of cases, followed by the migration of native B. coli into the tissues. A continuous stream of infection is thus produced. It must be remembered that the B. coli is usually associated with other organisms, notably the Streptococcus fæcalis, and that it is exceedingly difficult to distinguish the part played by each organism in the production of symptoms.

#### SYMPTOMS.

In a typical, severe, acute case of the urinary type the disease sets in abruptly with frequency of micturition followed by acute lumbar pain; there is a sharp rise of temperature, vomiting, and abdominal tenderness; diarrhea is sometimes present; in other cases there is constipation. The pulse rate is rapid, the temperature may be as high as 104°, and is of the remittent or intermittent type. Rigors are not uncommon, sweating is profuse. The perspiration has a peculiar acrid odour that is almost diagnostic. Tenderness and pain are usually present in the kidney region, and that organ is found to be enlarged. This is more common on the right side, probably on account of the lymphatic communications between this kidney

and the cæcum and ascending colon. The urine is strongly acid and becomes offensive after standing; on microscopic examination it is found to be teeming with organisms; a mere trace of albumen is found in the early stages of a first attack; hæmaturia is rare, and is only seen in relapses. This is the most easily recognized type of *B. coli* infection, and it is very liable to produce chronic infective renal lesions such as pyelo-nephritis, and, later, renal calculus.

Cases of the intestinal type are usually less severe in their onset. Diarrhea, usually with vomiting, is the most prominent symptom. The temperature does not usually rise above 102°. Gurgling is present in the excum, and there is diffuse abdominal tenderness, most marked in the right iliac fossa. The absence of rigidity and of cutaneous hyperæsthesia, the normal abdominal reflexes, and the low degree of leucocytosis, should help to distinguish the condition from appendicitis. The microscopic examination of the urine will establish the diagnosis.

The influenzal group of cases is characterized by headache, joint pains, particularly in the lumbo-sacral and sacro-iliac regions, sore throat, and slight bronchial catarrh. A mild pleurisy, without effusion, is not uncommon. The tongue is foul. The temperature is not usually above 100°. The pulse is slow and of poor volume. Constipation is usually present; vomiting is rare.

A more severe type of case resembling typhoid is occasionally met with. The diagnosis in these cases depends on the agglutination reactions and on the identification of the organism in the urine.

In a number of cases the onset is insidious. In children the disease is usually of intestinal onset. It is probably the most common cause of nocturnal enuresis and attacks of acidosis. Cases of the first three types, when uncomplicated, usually quiet

### COLON BACILLUS INFECTIONS

down in about ten days, but toxic manifestations continue for a variable time. The most notable of these are: (1) Tachycardia and præcordial pain, aggravated by exertion; (2) faintness, transitory blindness, or aphasia, all of which are associated with a low blood-pressure; (3) attacks of nausea after meals, sometimes accompanied by violent retching. Food is rarely vomited even when the retching occurs a few minutes after a meal. A small amount of clear mucus may be brought up if the retching is prolonged. Acetone and diacetic acid are not found in the urine during or immediately after the attack; (4) pain in the back and loins after exertion. Relapses are very common. They may occur over a period of many years.

### COMPLICATIONS.

In order to classify these the path taken by B. coli must be considered from the time of its migration until it is voided in the urine, evacuated from an abscess, or destroyed in the tissues. When it enters the submucous coat of the intestine it is either taken up by the lymphatics or it enters the portal system and is carried to the liver. A large proportion of the organisms reaching the liver are destroyed. If the dose be too heavy to be dealt with by this organ, some of the bacilli will reach the systemic circulation, or will infect the liver and invade the gall bladder. If only a small number enter the systemic circulation the majority are probably taken up by the kidneys and passed into the urine. With such a blood infection metastatic abscesses may arise in any part of the body.

Appendicitis: It seems possible that the lymphoid tissue in the appendix may bear the same relationship to the excum that the tonsils have to the mouth. Any infection, including a virulent strain of Bacillus coli, may produce inflammation of this tissue and consequent occlusion of the distal part of the

appendix. Diverticulitis: Abscesses may form in the submucous coat of the intestine, and burrow between the layers of the mesentery, or beneath the visceral peritoneum. Cholecystitis: This may occur either by lymphatic spread, or by infection from the portal system. Gastric and duodenal ulcer: Turke has been able to produce gastric and duodenal ulcers in dogs by feeding them for prolonged periods on food containing cultures of the colon bacillus. Their association with lesions of the large intestine is a well-recognized fact. Ischiorectal abscess: This usually has its origin in the infection of the submucous coat of the rectum.

Kidney: Transitory inflammations of the kidney are the most common complication. About 50 per cent. of cases of the urinary type suffer from it. The kidney becomes swollen and tender, and plugs of mucus pass down the ureter, giving rise to mild colic. Pyelonephritis: Minute subcapsular and cortical abscesses are by no means infrequent. In these cases the removal of the affected kidney is often Uræmia: This condition is unusual in an initial attack. I have met with two cases occurring during relapses; one died within twelve hours of the onset of symptoms and the other within three days. Calculus: Chronic kidney infections are not infrequently associated with The condition is not often met calculus formation. with during the first three years of infection. Cystitis: The lesions are generally most marked around the ureteral orifices, on one or both sides, suggesting the renal origin of the majority of cases. Prostatitis: This is most commonly met with in cases of urethral infection. Urethritis: This condition is only met with as an ascending infection. Epididymitis: This frequently occurs in association with prostatitis. Testicle: Metastatic abscess may occur apart from any injury. Abscesses containing B. coli are not uncommon in recruits who are learning to ride. In the cystitis of

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pregnancy and the puerperium the colon bacillus is usually one of the infecting organisms. In cases of severe puerperal sepsis it is commonly found in association with a streptococcus. In the milder cases staphylococci or colon bacilli, either alone or in combination, are the organisms most commonly present.

Skin: Chronic cases are peculiarly liable to staphylococcal skin infections. Recurrent attacks of boils are exceedingly common. Seborrhæa of the scalp and body

is also frequently found.

Arthritis: The colon bacillus, associated with a streptococcus, is a frequent cause of this condition. Goitre: This is rarely seen in auto-infections; it is, however, associated with the continued ingestion of small doses of foreign B. coli. Vaso-motor: Migraine and angio-neurotic ædema are met with in chronic infec-They are most frequently seen in mild cases of auto-inoculation. Central Nervous System: The depressing effects of intestinal derangements on the central nervous system have been recognized for many years. A large amount of work has recently been done on the bacteriology of the intestine in lunatics, but at present the results are unconvincing. Improvement in the mental condition has been met with after the rectification of gross lesions of the colon, appendix, and gall-bladder, but the definite association of B. coli infections with insanity has not yet been proved.

### PROGNOSIS.

The uncomplicated acute case is seldom fatal. When death does occur during this stage it is either from collapse following the prolonged vomiting, or from acute toxemia. If the condition has not cleared up after three months' proper treatment it is likely to become chronic. The complications most liable to delay recovery are gross lesions of the kidney, appendix, and gall-bladder. After the occurrence of a

metastatic abscess, a considerable proportion of cases clear up completely.

### TREATMENT.

Acute Stage: During the acute stage three things are essential, namely, rest, warmth, and large quantities of fluid. A brisk purge should be given. The urine should be kept alkaline with potassium citrate or sodium bicarbonate. It is usual to give salicylates in combination with these, to reduce pyrexia. If the vomiting is severe, hydrocyanic acid, in an effervescing mixture, gives the best results. Collapse should be treated by some diffusible stimulant such as camphor. Water or saline solution should be given rectally. If nausea is a prominent symptom, no attempt should be made to feed the patient. Starvation may safely be continued for a week, provided plenty of water and a certain amount of orange or lemon-juice is given.

Sub-acute Stage: During this stage it is important to avoid exposure to cold and over-exertion. Plenty of fluid should be drunk, but alcohol must be avoided. Soups, re-cooked meats, and condiments should not be taken. Treatment should be directed towards (1) disinfecting the intestine, and (2) increasing the patient's resistance.

The bowel must be kept empty. The administration of aperients should be avoided, but regular actions should be produced by one of the preparations of agar, or by liquid petroleum. The B. coli is so resistant to chemical germicides that it is doubtful whether material benefit is derived from their administration. Metchnikoff, when he advocated his sour milk treatment, found that the lactic acid producing bacteria contained in the preparation prevented putrefactive changes in the intestine, and were inimical to most of the intestinal flora. The Bacillus acidi lactici is normally present, in small numbers, in the cæcum. It requires for its growth

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either unaltered starch or unaltered sugar. As the starch and sugar taken by the mouth are altered before they reach the large intestine, the necessary medium for their growth is not forthcoming. If, however, uncooked starchy food, with unruptured cellulose capsule, is eaten, it escapes digestion and reaches the cæcum unchanged. In this way the lactic acid-forming bacteria are enabled to grow and to keep down the other organisms. A small quantity of uncooked coarse oatmeal, taken after each meal, is one of the simplest methods of providing the necessary medium. One of the sour milk preparations may also be given for a time in order to make sure that the intestine is planted with the acid-forming organisms. After oatmeal has been taken for about a week the reaction of the fæces becomes acid.

If the hæmoglobin be low, iron and arsenic should be given, preferably hypodermically. When cod-liver oil is tolerated it should be taken. In all cases an autogenous vaccine should be administered. It is a matter of the greatest importance to prepare this not only from B. coli, but from any other organism that is associated with it. If no other organism be found in the first sample, the investigation must be repeated two or three times. Vaccine as a rule is not indicated until after the temperature has been normal for a week. If the patient is getting about, it is important to have him kept quiet for an hour or two before, and twelve hours after, its administration. The first dose should be small: I have seen violent reactions follow a dose of 5 millions, and the initial amount should certainly not exceed this. If there be no marked reaction, a second dose of 10 millions may be given three days later, and the dose and interval gradually increased until the latter reaches seven days, and the former 100 millions after twelve doses. It is neither necessary nor desirable to exceed this quantity, but the

administration should continue over a long period. The intervals may be increased to three weeks or a month, but vaccine treatment should be persisted with for two or three years. The intestinal treatment should continue for a similar, or even longer, period.

Relapses are due to premature discontinuance of treatment or to the presence of some gross lesion, such as appendicitis, cholecystitis, chronic renal infection or prostatitis. Evidence of these should be carefully sought in all cases, but especially in those in which recovery is delayed. The futility of long-continued intestinal disinfection and vaccine administration, when gross lesions of this type are present, is too apparent to need further comment.

#### CONCLUSIONS.

Colon bacillus infection is extremely prevalent, and is the cause of a great deal of chronic ill-health. The stage of invasion is usually ushered in by an acute febrile illness, but it may be insidious in its onset. The condition tends to become chronic. Relapses or reinfections are the rule rather than the exception. majority of cases are associated with colitis. Gross lesions such as appendicitis, cholecystitis and renal infections are extremely common. Toxic manifestations, such as irregular heart action, mental depression, and derangement of the thyroid, frequently occur. Treatment: This must be directed towards (1) improving the condition of the intestine, (2) increasing the patient's resistance. In order to prevent the disease from becoming chronic, treatment must continue for a long period after all signs and symptoms have cleared. It is as necessary for the B. coli infected patient to have the urine examined from time to time as it is for the syphilitic to have repeated Wassermann tests.

# The Ultimate Fate of Disused Portions of Intestine after Complete Short-Circuiting Operations.

BY J. LIONEL STRETTON, M.R.C.S.

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TARIOUS methods of short-circuiting the intestine are employed; in each case the particular method chosen is that which is most applicable to the condition calling for operation. It is obvious that a simple side-to-side anastomosis between the ileum and the sigmoid flexure of the colon would not prevent the passage of intestinal contents into the colon above the site of the junction. If the prevention of the passage of intestinal contents is desired, it is necessary to cut through the ileum, close its distal end, and join the proximal end to the sigmoid flexure of the colon. This method is satisfactory in the majority of cases, but in some instances there is a backward flow of intestinal contents into that portion of the colon which it is . desired to put out of action. In order to prevent this I have been obliged to perform a second operation by dividing the colon just above the anastomosis and closing its two cut ends.

This procedure is what I intend to indicate by the term "complete short-circuiting operation." When this has been performed it is impossible for any intestinal contents to enter the portion of bowel between the divided ileum and the junction of ileum and sigmoid colon, unless some unnatural communication has been established by adhesion and ulceration with some other

administration should continue over a long period. The intervals may be increased to three weeks or a month, but vaccine treatment should be persisted with for two or three years. The intestinal treatment should continue for a similar, or even longer, period.

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#### DISUSED PORTIONS OF INTESTINE

her bowels acted, and she passed flatus.

She made satisfactory progress until the eighth day after the operation, when she exhibited signs of drowsiness, which gradually increased until she passed into a state of coma and died on the ninth day. I attribute her death to some form of toxemia. This was very disappointing, because she had recovered from the operation.

The portion of bowel removed consisted of fifty-two inches of colon, which had a circumference of fifteen inches at its most distended part, and eleven inches of the ileum, which was proportionately distended. There was no communication with any

other part of the intestinal tract.

The walls of the bowel were considerably thickened, and in view of this fact I am inclined to discredit the history given by the patient and her mother. It is probable that the distension had been developing for a much longer period than they realized, and that this had caused the walls of the bowel to become hypertrophied. The distension remained unrecognized until it was sufficiently advanced to cause acute discomfort.

. However the distension occurred, and whether its development was slow or rapid, it was entirely caused by gas, and as this could not have been introduced from without it is evident that it must

have been generated within that portion of the colon.

I am unable to offer an opinion why gas should be generated to such an extent; nor can I say why this should occur in one person and not in another, or in what proportion of cases it is likely to occur. A complete short-circuiting operation is relatively a rare one, and the number of times it has been performed is not sufficiently large to allow of positive conclusions being drawn.

So far as I am aware, this is the only case of its kind on record. If the future brings to light a considerable proportion of similar cases, it may be deemed advisable to include in these operations the routine removal of the disused portion of colon. If this is inadvisable in any particular case, a second operation should be performed at an early date in order to avoid the risk of a more formidable one later, when the gut has become hyperdistended and there is the further risk of increased toxæmia.

portion of the intestinal tract. In my experience, until recently, the disused portion of bowel always remained quiescent, and gave rise to no trouble. I had ceased to have any anxiety on this point until I met with the following case, which disillusioned me.

Five years ago I performed a complete short-circuiting operation upon a woman aged thirty-one. I divided her ileum twelve inches from the ileocæcal valve, closed the distal end, and planted the proximal end into the sigmoid flexure of her colon. I divided the colon above the anastomosis and closed both the cut ends. The patient made a good recovery and was able to perform her household duties.

I did not see her again until she was sent into the hospital early in April last (1925), suffering from acute distension of the abdomen. She stated that the swelling had commenced a fortnight before her admission, and had rapidly increased. This was confirmed by her mother, with whom she was living. There had been no vomiting; the bowels acted daily and she passed flatus freely. The distension was so extreme that she had difficulty in breathing, and there was continual gurgling of gas. The whole of the abdomen was hyperresonant. The heart was pushed upwards and to the right side of the thorax. I have often heard of the effect of flatulence on the heart, but never before had I witnessed such a striking example of it. Fortunately, this woman had a strong heart; but it is easy to believe that a much smaller degree of distension may cause faintness in anyone who possesses an enfeebled one. An X-ray examination was made by Dr. W. Michael after a bismuth meal had been given to the patient. He reported that the distension was confined to the colon; he could see the convolutions distinctly, and the intestine appeared to be distended with gas; the stomach was displaced upwards and its shape distorted. In view of the previous operation it appeared to me that, if Dr. Michael's opinion were correct; the most likely explanation of the patient's condition was that a portion of small intestine had become adherent to the disused bowel and formed with it a communication of such a nature as to allow of the passage of intestinal contents and gas.

I opened the abdomen and found that the distension was caused by an enormous dilatation of the disused portion of colon. Into this I introduced a trocar the size of a No. 12 catheter, with the result that some flatus and semi-solid fæcal matter escaped; this did not, however, make any appreciable difference in the size of the distended gut. I could not discover any communication between this and any other portion of the intestinal tract. I excised the whole of the disused bowel. The operation occupied one hour and ten minutes from the commencement of administering the anæsthetic until the application of the final dressing. Very little hæmorrhage occurred, and the patient bore the operation well. There was some aftershock, from which she soon recovered. On the following day her abdomen was flaccid, her heart had resumed the normal position.

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#### MIGRAINE.

This is undoubtedly the most common disease of the nervous system as seen both by the oculist and the practitioner. It is a disease frequently referred by the latter to the specialist, with a view to exclusion of more serious organic cerebral disease. Many consider migraine to be a functional disorder; personally, I consider it to be due to an angio-neurotic disturbance of the circulation of the sensory cerebral cortex. therefore closely allied to epilepsy, which is due to a like disturbance of circulation in the motor cerebral cortex. A patient with transient and periodic attacks of visual disturbance, e.g. hemianopia or scotomata. combined with an error of refraction, most commonly a myopic astigmatism, a latent heterophoria, and a normal and healthy fundus, is usually the subject of migraine. The slightest suspicion of optic neuritis or edema of the disc, combined with constant headache and reduction in pulse rate, must make us consider the probability of cerebral tumour. Cerebral vomiting is an unreliable symptom, as it is present with both migraine or tumour. Correction of the error of refraction and the heterophoria, if present, will frequently alleviate or cure the attack. In some cases, however, it is necessary, if possible, to restrict the patient from too heavy mental or physical stress. Mental worry and myopic astigma-tism are the chief ætiological factors in migraine.

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In major epilepsy the ophthalmic signs are not diagnostic, but when used intelligently with the other symptoms of the disease, they are certainly helpful. Immediately before the fit we find the classic visual aura, which need not be fully described. During the

# Ophthalmic Signs in Common Nervous Diseases.

By W. FLETCHER STIELL, M.R.C.S., L.R.C.P.

Ophthalmic Surgeon, Ministry of Pensions, Lincoln; late Ophthalmic Surgeon, City of Lincoln Education Authority, etc.

HE late Professor Osler once remarked to me that "the general practitioner is the ideal specialist." He it is, who is in a fit position to be able to filter out the unimportant symptoms of any case and to localize the important symptom to its correct organ. I have frequently met patients who have consulted an oculist for headache. He has honestly prescribed correcting lenses for any error of refraction that may exist. Frequently the headaches are cured, frequently they are not. The failures disappoint the patient and bring odium on the oculist. He has overlooked the fact that headache is a symptom of many systemic diseases. He has fallen into the trap of becoming over-zealous on his special subject.

I have written this article in The Practitioner in the hope that it may be of some aid to the general practitioner in arriving at a diagnosis by certain ophthalmic appearances. I do not mean to suggest that the diagnosis should depend entirely upon these changes, any more than a positive diagnosis of syphilis should be made from a positive Wassermann reaction, but there is no doubt that much useful information may be gleaned by a careful examination of the eye. I have been able to enumerate nearly one hundred diseases, which are revealed to a greater or lesser extent in the eye, but in an article of this scope, it is possible to touch upon only

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#### OPHTHALMIC SIGNS

and almost diagnostic. First, as regards the pupil, this is usually contracted, sometimes even to pin-point size. In some cases no alteration in size occurs, but dilatation is no sign of tabes. They may be unequal, i.e. one contracted and one normal. The typical Argyll-Robertson pupil of tabes is one which will not react to light, but which will react to accommodation. The most characteristic change in the fundus of the tabetic patient is an optic atrophy of the primary type. I would like to lay stress on the fact that the typical Argyll-Robertson pupil and the primary optic atrophy are frequently the very first signs of tabes dorsalis; they are frequently present years before the typical spinal signs ensue.

#### GENERAL PARALYSIS OF THE INSANE.

In this disease, as may be expected, the ocular signs are not widely different from those of locomotor ataxy. The pupils are usually contracted at first, but dilated in the later stages of the disease. They are often unequal in size, with a poor light reaction in the wider pupil. A typical paradoxical pupil symptom, i.e. alternate contraction and dilatation of the pupil for a few seconds on stimulation of the eye with a well-focussed pencil of light, is very suggestive of general paralysis. I am afraid, however, that so much reliance cannot be placed on this sign as some authorities advocate. I can frequently elicit a similar sign in neurotic patients, whose pupil is dilated at the very thought of a visit to a doctor.

#### ENCEPHALITIS LETHARGICA.

In this disease the ophthalmic signs and symptoms are numerous, complicated, and almost diagnostic. It is obvious, therefore, that an oculist may be of considerable assistance to the physician. Unfortunately the ocular symptoms may be relatively severe in even

fit we notice, firstly, a fibriliary twitching of the closed eyelids and later a rapid opening and closing of the lids. The conjunctival reflex is lost and the pupils are dilated. After the fit all that remains is an occasional subconjunctival ecchymosis, resultant upon the venous congestion and cyanosis. Between the fits the eyes are comparatively normal. There is, however, a peculiar loss of visual concentration. The eyes wander or are fixed upon some irrelevant object. Refractive errors are frequent, but these seem to have little bearing on the disease. Correction will not cure true epilepsy.

In Jacksonian epilepsy, it is common to find an optic neuritis or post-neuritic atrophy. This is produced as a pressure sign of the tumour or other condition causing the epilepsy.

#### DISSEMINATED SCLEROSIS.

A central colour scotoma is an early and very frequent sign, and sometimes there may be an absolute central scotoma. Irregular defects of the peripheral field are frequently transient, like all the other symptoms of the disease. Transient blindness may occur. The fundi may appear normal or, at the most, slight atrophic signs may be present at the disc. Defective vision with pain on movement of the eyeballs and pain on pressing the eyes back into the orbits usually signifies a retrobulbar neuritis. This condition is frequently present in disseminated sclerosis. nystagmus is present in 50 per cent. of cases, and is rare in other nervous diseases. This must not be mistaken for a slight twitching seen when even normal eves are moved to extreme lateral positions. perimetric readings in disseminated sclerosis may be an aid in the differential diagnosis from hysteria, which disease it frequently simulates.

#### TABES DORSALIS.

The ocular manifestations of this disease are typical 220

#### OPHTHALMIC SIGNS

be expected to differentiate between these conditions, then  $\hat{\mathbf{I}}$  would suggest the following as a working basis. Those patients who complain of asthenopia without excessive ocular work (reading Snellen No. 6 for over an hour continuously I consider, as a standard, to be excessive), and in whom we find an error of refraction of less than two dioptres between the ages of ten and thirty years, should be considered as ocular neurasthenics. These patients are unable to withstand the accommodative strain of a normal individual, their supply of nervous energy is subnormal to normal requirements, and I interpret them as neurasthenics. A patient who complains of asthenopia, without excessive ocular work, who has no error of refraction at all and normal balance of the extrinsic ocular muscles, must be considered to be hysterical. If, in addition, this patient has a full range of accommodation, then he probably malingers. In practice I find that the hysterical patient seldom acquires a visual acuity of  $\frac{6}{5}$ . The true neurasthenic struggles to attain his goal, generally with a few justifiable or well-recognized mistakes. I would point out that quite a large proportion of an oculist's patients, or even patients in general, may be classified as neurasthenic. therefore of the utmost importance to be able to diagnose these cases from those due to organic eye disease. For the oculist who acts on behalf of the Minister of Pensions or on County Court work, it is equally important to be able to differentiate between the true neurasthenic and the malingerer. Fortunately it is a fairly simple matter to detect the latter, and he now rarely risks his appearance in the ophthalmic clinic.

The symptoms of the ocular neurasthenic are purely subjective, the visual defects entirely functional. They are not attended by any visible changes in any portion of the ocular apparatus. The most that the oculist can detect is a refractive error. This, however,

the mild cases and, on the other hand, may be slight in the most severe cases. It is the former class of case which is seen most frequently by the ophthalmic surgeon. For the purpose of an ophthalmic description there is no need to divide the cases into two classes, as the eye signs may be mild or severe in either class. The subjective symptoms of the patient may be briefly. described as: (1) Diplopia due to paralysis of the extrinsic ocular muscles; (2) diminution of visual acuity due to either paresis of accommodation or to organic nerve changes; and (3) difficulty in keeping the eyes open due to paralytic ptosis. The objective signs are numerous, when a really careful scrutiny is possible in a well-established case. The eyes are only partly open, but can be, as a rule, temporarily more fully opened, if the patient be loudly addressed. This effort cannot, however, be long sustained. The conjunctive are slightly congested, the cornea is dulled and somewhat dry, and its reflex is diminished. The pupils are usually equal and react sluggishly to light. Reaction to accommodation cannot be elicited. When the lids are raised, either actively by the patient or passively by the doctor, we notice a slow side-to-side movement of the The movements appear aimless and the eyes If an ophthalmoscopic examination is fail to fix. possible, all media are found to be normal, but optic neuritis is the rule. This neuritis will sometimes resolve with return of normal vision, but will frequently progress, leaving an absolute post-neuritic atrophy and complete blindness.

#### NEURASTHENIA AND HYSTERIA.

The oculist who attempts to arrive at his diagnosis from ophthalmic symptoms alone, is not able to differentiate between these two diseases. The physician, with many more organs and symptoms to help him, may attempt a more accurate diagnosis. If the oculist is to

### The Treatment of Acute Rheumatism and Its Allies.

By JOHN WISHART, M.D., D.Sc., F.L.S.

Honorary Physician, National Children's Orphanage and Wansbeck Institution, Newcastle-upon-Tyne.

URING twenty-three years of medical practice I have often been face-to-face with the gravity of acute rheumatism and its allies, especially in youthful persons. The complications and sequelæ are so disastrous in after-life and the treatments taught in the medical curriculum so inadequate that one strives to discover something that will ameliorate or cut short individual attacks and also prevent after-effects.

Acute rheumatism in children differs from that in adults in having less fever and little sweating, muscular pains instead of arthritis, and greater cardiac damage. It often runs a chronic course with an acute exacerbation on the way.

A child who suffers from tonsillitis, and fourteen days after complains of "pains," "growing pains," "stitches in the sides," usually has inflamed tonsils with lacunæ filled here and there with pus; he is almost invariably a case of acute rheumatism. I find it wise, therefore, to treat each attack of tonsillitis as if it were premonitory to an attack of rheumatic fever. I do so by quickly applying to the tonsils, with the aid of an atomiser or throat brush during gentle expirations, a paint consisting of one part of tincture of iodine to seven parts of anæsthetic ether, until the tonsils become iodine-coloured and dry. It may be found necessary to repeat the application every third day.

Internally I give calomel according to age, at night, with a little sulphate of soda in the morning, and col-

cannot honestly be ascribed as the sole cause of the patient's condition, as we see many persons with a like error who will complain of no symptoms at all. Even the ocular symptoms alone, as described by the neurasthenic, are too numerous to enumerate here. Every neurasthenic will eventually detail at length his ocular symptoms to his physician, although they are frequently given en passant and always confused inextricably with the general symptoms. To the oculist these patients are an even greater difficulty, as it is practically impossible to persuade them to concentrate on their eyes alone; they will invariably, in the midst of a difficult perimetric examination, suddenly divert their attention to some remote and entirely irrelevant nervous symptom.

To state the case briefly, when we see a patient who is amblyopic in one or both eyes, with a concentric contraction of the visual field, with a perfectly normal fundus and no signs of glaucoma, we can be fairly certain that we are dealing with a case of nervous amblyopia. If we are able to elicit what is known as the spiral field of ocular fatigue, we can be even more positive in our diagnosis.

It is no exaggeration to say that practically every symptom, and even many of the ocular signs, can be simulated by the hysterical patient. Complete hysterical amaurosis of one eye is frequently seen—ptosis, blepharospasm, lachrymation, and photophobia, are all hysterically represented. In children I have seen hysterical squint and nystagmoid movements, while recently I was much puzzled by a child with typical conjugate deviation of head and eyes towards the left, which proved to be entirely of an hysterical nature. The ophthalmoscope, the perimeter, and clinical experience are the oculist's salvation in the detection of these cases.

#### Practical Notes.

#### Pleurisy with Effusion in Children.

S. Graham contradicts the widely held opinion that pleurisy with effusion in children is of a tuberculous nature. He comes to the conclusion, from a study of the end-results of a series of cases, that it is unlikely that in pleurisy with effusion in children there is a primary lesion in the lung. Of fifty-six consecutive cases of pleurisy with effusion admitted to the Royal Hospital for Sick Children, Glasgow, an after-history was obtained in thirty-nine. Thirty-two appeared to have recovered completely. In the remaining seven cases (17.9 per cent.) subsequent tuberculous lesions developed, and in two of these the disease proved fatal, while in a third the prognosis is very grave. In those cases in which a subsequent lesion did develop, it became manifest within one year after recovery from the initial illness. The most common evidence of a previously existing pleurisy with effusion in a child is, states Dr. Graham, a flattening of the affected side. This was detected in 68 per cent. of the cases; but it gives rise to no symptoms, and tends to disappear as adult life is reached .- (Glasgow Medical Journal, July, 1925, p. 1.)

#### The Treatment of Burns.

I. S. Ravdin and L. K. Ferguson, having noted the high incidence of mortality in cases of extensive superficial burns, have made a study of fifteen cases and publish the results. The authors accept the view that the toxins absorbed are formed by the action of the heat upon the tissues. The toxins rapidly become absorbed, and, in the authors' opinion, local blocking of the circulation and early removal of the necrotic tissue will save many lives. The administration of large amounts of fluid is directed towards the elimination of the toxin. Since the liver is a powerful detoxifying agent, the authors' patients were put on a high carbohydrate diet; there is, however, some doubt as to the efficacy of this procedure. admitted to hospital all clothing was removed as soon as possible and an electric cabinet placed over the bed; although children under the cabinet were frequently irritable for the first few hours, they quickly became accustomed to the radiant warmth, and later were much upset when it was removed, even temporarily; it was kept at a temperature of 100° F. The burned area was then covered with gauze saturated with a solution of \( \frac{1}{2} \) to 1 per cent. solution of novocain, with ten minims of adrenalin to each fluid ounce. When the patient has reacted from the shock the area of a second-degree burn has become sufficiently anæsthetized to allow of the removal of the burned skin and opening of the blebs without pain; if the burn is of the third degree the patient is anæsthetized, and a careful débridement done within twenty-four hours. In the

losol ferromanganese as a tonic during convalescence. In addition, I give hypodermically, 1 c.cm. of rheumatism phylacogen, soaking a small area of skin for twenty minutes with 20 per cent. cocaine solution and then slowly injecting at that point. Under this treatment cases of acute rheumatism or tonsillitis get thoroughly well in about ten days.

In cases of chorea and erythema nodosum I make the same tonsillar application once weekly for three successive weeks, give the same internal treatment, inject 1 c.cm. of rheumatism phylacogen once weekly for three weeks in succession, and finally end another week with 1 c.cm. of mixed infection phylacogen.

I have found that the results of this method are enormously superior to those obtained by the older methods of treatment.

#### PRACTICAL NOTES

Sinton's treatment is carried out as follows, using his alkaline mixture (for an adult : sodium bicarbonate 60 grains, sodium nitrate 40 grains, and water to I ounce), and his quinine mixture (for an adult : quinine sulphate 10 grains, citric acid 30 grains, magnesium sulphate 60 grains, water to 1 ounce). On the first day four doses of the alkaline mixture and two doses of the quinino mixture are given, the latter on each occasion fifteen minutes after the alkaline mixture. For the next four days three doses a day of the alkaline mixture, followed after fifteen minutes by three doses of the quinine mixture, and for the next two days two doses of alkaline mixture, followed after a fifteen minutes' interval by two doses of the quinine mixture; in all, the patient takes during the week 180 grains of quinine sulphate. In every case the patient's blood was examined before his discharge from hospital, and was invariably found to be negative for malaria .- (Indian Medical Gazette, May, 1925, p. 212.)

#### The Diagnosis of Gonorrhæa in Women.

H. Danin states that in women affected with gonorrhee a neutral or an alkaline reaction of the vagina is found, and never an acid reaction. The litmus paper is pasted on the finger of a rubber love in order to introduce it into the vagina, taking care to avoid acid urine and the alkaline secretion from the cervix uteri. If is acid, and the examination is made at least five days tys before menstruation, gonorrhee may be definitely inchener Medicinische Wochenschrift, May 1, 1925,

majority of the cases fluid was administered only by the mouth, but the intravenous method was used when considered necessary. The novocain packs were used for from forty-eight to ninety-six hours, depending on the extent of the burn and the time at which débridement was performed. On their removal the area was sprayed every three hours with a fresh 2 per cent. solution of dichloramin-T; in the less extensive burns packs of normal saline solution were used, and found to give favourable results. In cases requiring extensive débridement skin grafting was done as soon as healthy granulations appeared. In the series of fifteen cases there was only one death.—(Annals of Surgery, February, 1925, p. 439.)

#### Treatment of Asthma.

D. Daniélopolu insists that the chief part in the causation of asthma is played by a local factor, such as a local anaphylactic condition, or an intra- or extra-pulmonary affection. He has obtained the best results by giving calcium chloride over a period of weeks, in doses of from 5 to 10 grams (grs. 75 to 5ij ss) daily; it reduces the general amphotonia and local hyperexcitability. Quinine and iodides gave favourable results in other cases. Autoserotherapy, autohæmotherapy, and tuberculin therapy were all useful in certain cases, as was the operation of cervical sympathectomy, severing all the fibres of the vagus or the superior laryngeal nerve entering the thorax.—(Bulletin de l'Académie de Médicine, May 5, 1925, p. 505.)

#### Treatment of Tuberculosis of the Bladder.

MM. Marion and Blanc report gratifying results in the treatment of cystitis accompanying renal tuberculosis, alike in patients operated upon and not operated upon, by the instillation of solutions of methylene blue into the bladder. The usual strength is I per cent. of methylene blue in normal saline solution, but in acute cases a solution of 0.5 per cent. is employed. If much débris is contained within the bladder this should first be removed by irrigations, repeated if necessary. The instillations are usually given on alternate days, but in acute cases on every third day, and four or five instillations are normally enough to give relief for some considerable period. It is better not to carry out a prolonged treatment, but to resume it if necessary from time to time when symptoms reappear. Methylene blue should be given by the mouth at the same time; it acts both as a urinary antiseptic and an analgesic.—(Presse Médicale, March 7, 1925, p. 306.)

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#### Treatment of Sciatica and Muscular Rheumatism.

P. Demiéville states that he has achieved good results in the treatment of sciatica by the intramuscular injection of hot physiological saline solution containing 2 per cent. of salicylate of soda. He recommends this treatment also for rheumatism of the larger muscles of the trunk, for which muscular rheumatism has a predilection, and particularly in the case of stubborn rheumatism of the gluteus medius. Two or three injections, at intervals of two days, are usually sufficient, and the commencing dose is 5 to 7 c.cm. of the solution, increasing this gradually to 10 or 12 c.cm. In extremely painful rheumatism of the gluteus medius Dr. Demiéville sometimes injects 4 to 7 c.cm. of the solution at each end of the muscle.—(Revue Médicale de la Suisse Romande, May 25, 1925, p. 321.)

#### Disease of the Gall-Bladder in Young Children.

C. R. Snyder points out that the occurrence of gall-bladder disease in young children has hitherto been regarded as extremely rare, if not altogether non-existent. In his opinion, however, cholecystitis and cholelithiasis are actually not very rare in children, but are usually unrecognized. He gives detailed notes of three cases which have occurred recently within his own experience, all

majority of the cases fluid was administered only by the mouth, but the intravenous method was used when considered necessary. The novocain packs were used for from forty-eight to ninety-six hours, depending on the extent of the burn and the time at which debridement was performed. On their removal the area was sprayed every three hours with a fresh 2 per cent. solution of dichloramin-T; in the less extensive burns packs of normal saline solution were used, and found to give favourable results. In cases requiring extensive débridement skin grafting was done as soon as healthy granulations appeared. In the series of fifteen cases there was only one death.—(Annals of Surgery, February, 1925, p. 439.)

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#### · PRACTICAL NOTES

pregnancy. Where animals are subjected to deficient diets there is evidence that lowered fertility is produced, but whether this is due to the effect upon the nutrition of the growing feetus, or to a lowered vitality of the egg or sperm cell, there is as yet not sufficient evidence to state. Each case of abortion should be studied with the greatest care, as prevention can only be based on thorough and more complete understanding of causes.—(Boston Medical and Surgical Journal, July 16, 1925, p. 116.)

#### Treatment of Skin Irritations in the Groin.

Sabouraud points out that some of the erythematous irritations that commonly arise in the region of the groin are often resistant to treatment. He recommends the following prescriptions:—

R Tinct. iodi - - - - g. 20 (5v)
Spt. æther co. - - - g. 180 (5vi)
To be rubbed well on with a swab of cotton-wool. The following

ointment is afterwards applied :--

Calomel - - - - g. 0·30 (grs. v)
Acid. tannic. - - - g. 0·30 (grs. v)
Vaseline - - - - g. 30 (5j) R Calomel

In persistent eczematous cases the following ointment may be applied :-

R Chrysarobin - - - - g. 0·20 (grs. iii)

Zinc. oxid. - - - - - g. 2 (grs. xxx) - g. 20 Vaseline

In inguinal erythema a 5 per cent. solution of silver nitrate is also sometimes useful, or, in moist erythema, the following lotion:-

- g. 5 (grs. 75) - g. 1 (grs. 15) R Ichthyol Ichthyol - - - - g. 5 (grs. Resorcin - - - g. 1 (grs. Aq. distillat. - - - g. 100 (\(\frac{1}{2}\)iii)

Allow this to dry, and then apply a 10 per cent. zinc ointment.— (Journal des Praticiens, July 18, 1925, p. 475.)

#### Painless Childbirth in General Practice.

A. Rathelot has made a study of different methods of obstetrical analgesia, particularly from the point of view of the general practitioner. He comes to the conclusion that scopolomine-morphine analgesia, owing to the dangers which it may have not only for the infant but for the mother, should be reserved for employment in special hospitals only, and is unsuitable in private practice. Somnifene is a sure analgesic, but frequently causes excitation of the mother, and requires a prolonged and uncertain duration of analgesia, both of which cause difficulties in private practice. Hemypnal in the form of suppositories and cachets is uncertain in its action, but is more useful in solution suitable for subcutaneous injection. As a result of his clinical experience, Dr. Rathelot is of opinion that hemypnal and didial are the most useful obstetrical analgesics in general practice; they are harmless to mother and infant, the uterine contractions are not affected, and analgesia is complete, provided a sufficient dose (6 c.cm.) be given.—(Gazette des Hôpitaux, June 2 and 4, 1925, p. 724,)

of whom made excellent recoveries after operative treatment. He states that the diagnosis of such cases should not be difficult, especially in older children, provided that the possibility of cholecystitis and cholelithiasis occurring in a child is kept in mind.—(Journal of the American Medical Association, July 4, 1925, p. 31.)

#### The Treatment of Gastric Ulcer in Children.

O. S. Proctor says that the most important single factor in the diagnosis of chronic peptic ulcer in children is the realization that it does actually occur in children. It is found least often in early years, but occurs with gradually increasing frequency until the limits of childhood are passed. Hyperchlorhydria is usually absent, but when present it may be helpful in diagnosis. The X-ray is of great assistance in diagnosis. As regards treatment, medical treatment should always be given a thorough trial, unless there are definite contraindications to it, such as marked stenosis at the pylorus, repeated hæmorrhages, or perforation. The younger the child, the more prompt is the response to treatment. If medical treatment fails, or if there is stenosis, repeated hæmorrhage, or perforation, the case becomes surgical. The simplest operations are best; excision of the ulcer, and a pyloroplasty or gastroenterostomy.—(Surgery, Gynecology, and Obstetrics, July, 1925, p. 63.)

#### The Effects of Insulin in Malnourished Infants.

F. T. Tisdall, A. Brown, T. G. H. Drake, and M. G. Cody have studied the effects of insulin in the treatment of malnutrition in children, Pitfield, Marriott, and Barbour having all previously reported, independently, beneficial results. In none of their papers, however, were any blood-sugar determinations reported. Tisdall and his colleagues found a definite increase in weight in 50 per cent. of the cases; but in many instances other factors were present which lessened the probability that insulin was the cause of the increase in weight. They point out that the effect of insulin on the blood-sugar concentration varies tremendously in infants, consequently its administration is not without danger. The conclusion they come to is that there is no positive evidence that insulin, per se, has any beneficial effect in malnutrition in infants.—

(American Journal of Diseases of Children, July, 1925, p. 10.)

#### The Causes of Abortion.

D. Macomber suggests that our ideas as to the causation of abortion have been much altered as the result of recent animal experimentation and embryological study. In his own experiments he has found that when impregnation does occur a practically normal number of embryos may begin development, but perhaps only one of four or five of these will come to maturity. In other words, full vitality of the spermatozoon is certainly one factor necessary for full development of the embryo; this is strongly suggestive that low fertility of the male—as well as low fertility of the female—may be a cause of the premature termination of a

#### · PRACTICAL NOTES

pregnancy. Where animals are subjected to deficient diets there is evidence that lowered fertility is produced, but whether this is due to the effect upon the nutrition of the growing fœtus, or to a lowered vitality of the egg or sperm cell, there is as yet not sufficient evidence to state. Each case of abortion should be studied with the greatest care, as prevention can only be based on thorough and more complete understanding of causes.—(Boston Medical and Surgical Journal, July 16, 1925, p. 116.)

#### Treatment of Skin Irritations in the Groin.

Sabouraud points out that some of the erythematous irritations that commonly arise in the region of the groin are often resistant to treatment. He recommends the following prescriptions:—

R Tinct. iodi - - - g. 20 (5v) Spt. æther co. - - g. 180 (5vi)

To be rubbed well on with a swab of cotton-wool. The following ointment is afterwards applied:—

R Calomel - - - - g. 0·30 (grs. v) Acid. tannic. - - - g. 0·30 (grs. v) Vaseline - - - - g. 30 (5j)

In persistent eczematous cases the following ointment may be applied:—

R. Chrysarobin - - - - g. 0·20 (grs. iii)
Zinc. oxid. - - - - g. 2 (grs. xxx)
Vaseline - - - - g. 20 (5vi)

In inguinal erythema a 5 per cent. solution of silver nitrate is also sometimes useful, or, in moist erythema, the following lotion:—

R Ichthyol - - - - - g. 5 (grs. 75)
Resorcin - - - - g. 1 (grs. 15)
Aq. distillat. - - - - g. 100 (\(\frac{5}{3}\)iii)

Allow this to dry, and then apply a 10 per cent. zinc ointment.—(Journal des Praticiens, July 18, 1925, p. 475.)

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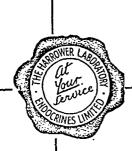
### Reviews of Books.

Fractures and Dislocations. By Philip D. Wilson, M.D., F.A.C.S., and William A. Cochrane, B.Ch., F.R.C.S.Ed. Illustrations, 978. Pp. 789. London: J. B. Lippincott Co. 45s. net.

This profusely-illustrated volume is written by an American and a Scottish author, who define succinctly the scope and object of their work in the sub-title as "The immediate management, after-care, and convalescent treatment (of fractures and dislocations), with special reference to the conservation and restoration of function." The principles of treatment are discussed under the headings of the functional viewpoint in treatment and its relationship with pathology; how far restoration of function is dependent upon the recovery of anatomical form; the optimum positions for fixation and function; treatment by massage and mobilization, and the Röntgenological examination of fractures at all times. These subjects have acquired additional importance, partly owing to the lessons we were compelled to learn during the progress of the war and subsequently to it, lessons which we are not likely to be in danger of forgetting; and partly owing to the wider application of workmen's compensation legislation, where it is essential for the expert to be able to gauge to a nicety the temporary and permanently disabling effects of these kinds of injuries. Much of the experience, so fully detailed, has been acquired in the Fracture Service of the Massachusetts General Hospital; and we are glad to note that the book is dedicated to that most enthusiastic exponent of the surgery of deformities, Dr. Joel E. Goldthwait. The volume is a distinct addition to surgical literature, and will prove to be an exceedingly valuable work of reference.

Theory and Practice of Nursing. By M. A. Gullan. Demy 8vo. Second Edition. Pp. 234. London: H. K. Lewis & Co., Ltd. 9s. net.

The second edition of this book has followed the first in such a short time as to show its estimation with the public to which it appeals. It differs from the first in comparatively few details, and by the addition of three chapters. In the small compass of some 200 pages it contains a complete résumé of the technique and knowledge required of a trained nurse. It will be of the greatest value to those nurses who have already had a fair amount of actual practice in their art, and should be of service to them in explaining some of the principles on which the practice has been founded. The book should also be very useful for those whose duty requires them to prepare lectures and demonstrations to nurses.



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- BOOTH, G. H. H., M.B., Ch.B., appointed House-Surgeon to Manchester Royal Infirmary.
- BUSH, W. H., L.M.S.S.A., L.S.A., appointed Certifying Surgeon under the Factory and Workshop Acts for Chulmleigh, Devon.
- CLEMENTS, ERNEST, M.B., B.Ch., B.A.O.Belfast, appointed Medical Officer to the Driffield Cottage Hospital.
- DONNELLY, N. M.. M.B., B.Ch. R.U.I., D.P.H., appointed Assistant Medical Officer and Tuberculosis Officer for Deptford.
- DOUGAL, DANIEL, M.C., M.D. (Yict.), appointed Honorary Assistant Gynæcological Surgeon to the Manchester Royal Infirmary.
- GIBB, W. F., L.R.C.P. and S.Edin., L.R.F.P.S.Glas., appointed Certifying Factory Surgeon for the Higham Ferrers District, co. Northampton.
- GREENSLADE, C. M., M.B., Ch.B., (N.Z.), F.R.C.S., appointed Assistant Surgical Officer to Royal Chest Hospital, City Road, E.C.
- HAMILTON, W., M.B., Ch.B.Glas., appointed Certifying Surgeon under the Factory and Workshop Acts for the Loanhead District of the County of Edinburgh.
- JOHNSON, Miss M., M.B., Ch.B., appointed Clinical Assistant (Surgical) to Manchester Royal Infirmaty.
- KELLY, A. C., M.B., Ch.B.Manch., appointed Demonstrator in Anatomy to University of Manchester.
- KERLEY, PETER, M.B., appointed Radiologist to Royal Chest Hospital, City Road, E.C.
- LANGFORD, C. F., M.B., B.Ch., appointed House-Surgeon to Mauchester Royal Infirmary.
- LANKASTER, A. L., M.R.C.S., L.R.C.P., appointed Assistant Resident Medical Officer, Queen Charlotte's Maternity Hospital, Marylebone Road, N.W.I.
- MARSHALL, C. T., M.B., Ch.B., appointed House-Physician to Manchester Royal Infirmary.
- MELLAND, C. H., M.D.Lond., B.Sc. Manch., appointed Lecturer in Medicine for Dental Students, University of Manchester.

- MOXON, F., M.B., B.S.Durh., appointed Ophthalmic Surgeon, The Nelson Hospital Merton.
- MUCKLOW, S. L., M.B., Ch.B., appointed House-Physician to Manchester Royal Infirmary.
- MUMFORD, P. B., M.B., Ch.B., appointed Assistant in the Dermatological Department, Manchester Royal Infirmary.
- OLIVER, T. D., M.D. Manch., appointed Lecturer in Systematic Medicine, University of Manchester.
- O'SULLIVAN. MORTIMER, M.B., Ch.B., B.A.O., appointed House Surgeon to the North Charitable Infirmary and Cork Dental Hospital, Cork.
- PATERSON, R.S., M.B., Ch.B., Manch., appointed Lecturer in Applied Anatomy to University of Manchester.
- PENMAN, H., M.B., Ch.B., appointed House-Surgeon to Specials Department, Manchester Royal Infirmary.
- REID, H., F.R.C.S.Eng., M.B., Ch.B. Liverp., appointed Honorary Assistant Surgeon to the Royal Infirmary, Liverpool.
- RIDDETT, STANLEY ALFRED, M.C., L.R.C.P., M.R.C.S., L.D.S., appointed Honorary Assistant Dental Surgeon, Royal Dental Hospital of London School of Dental Surgery.
- SEED, N. F., M.B., Ch.B., appointed House-Surgeon to Manchester Royal Infirmaty.
- SMIRK, F. H., M.B., Ch.B., appointed House-Physician to Manchester Royal Infirmary.
- STEWART, D., M.R.C.S.. L.R.C.P. Lond., appointed Lecturer in Anatomy to University of Manchester.
- TURNER, EILEEN M., M.B., B.S. Lond., appointed Assistant Medical Officer of Health and Assistant School Medical Officer, Holland, Lines.
- WILLIAMS, H. LESTER, M.B., Ch.B., F.R.C.S., appointed Assistant Surgical Officer to Royal Chest Hospital, City Road, E.C.
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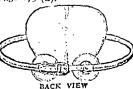
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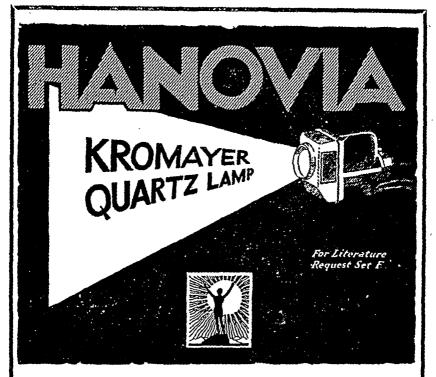
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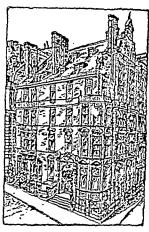


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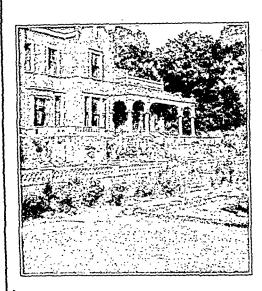
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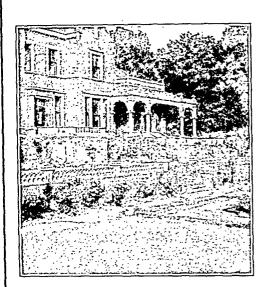
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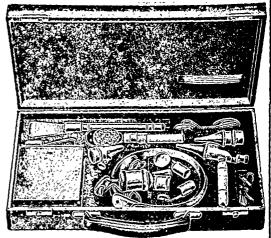
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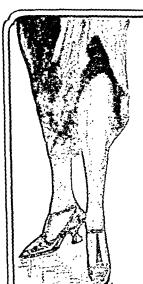
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